

THE IRON AGE

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New Plant of Pyle-National Company

Manufacturer of Locomotive Headlights, Turbo Generators and Valve Gear Housed in Notable Buildings — Low Insurance Cost — Testing Apparatus

ANOTHER example of the present-day tendency to construct manufacturing plants which in every detail may be compared to a completely equipped and well-finished machine, presenting something good to look at, as well as affording maximum utility, is embodied in the entirely new factory of The Pyle-National Co., 1337 and 1357 North Kostner Street, Chicago, manufacturer of turbo generators and headlights for locomotives and locomotive valve gear. The group of buildings consists of a two-story, fire-proof office building, 46 x 124 ft.; a machine shop, 122 x 300 ft., of steel frame and mill roof construction; forge shop, 48 x 94 ft.; foundry, 79 x 204 ft.; power house, 57 x 76 ft., and a one-story warehouse, 94 x 168 ft. It was designed by Davidson & Weiss, architects, and the mechanical details were supervised by Patterson & Davidson, engineers, Monadnock Block, Chicago.

The machine shop, a view of which is given

in Fig. 1 has a mezzanine floor 32 ft. in width on either side, with narrower connections at the ends. Most of the machine tools at present in use are under the mezzanine floor, the lathes being staggered to economize in space. The general construction of the shop is well shown in the illustration. To the right of the picture is the tool-room. More machine tools are to be placed in the shop, but the major portion of the central part of the floor will be reserved for the assembly of valve gear. All of the large tools, some of which can be seen in the background of the half-tone, are motor-driven, the smaller tools being group-driven. The machine shop and, in fact, every building in the group, even the forge shop, is equipped with sprinklers. As a result of this protection, together with the character of construction and the general care that is exercised against fire, the insurance cost is less than 4½c. per \$100. The fire equipment includes a 60,000-gal. gravity tank and



Fig. 1—Machine Shop of Pyle-National Co., Chicago. Mezzanine floor on sides of building is 32 ft. wide. Most of the machine tools are under the balcony, the center of the floor being reserved for assembly. Traveling crane is controlled from the floor

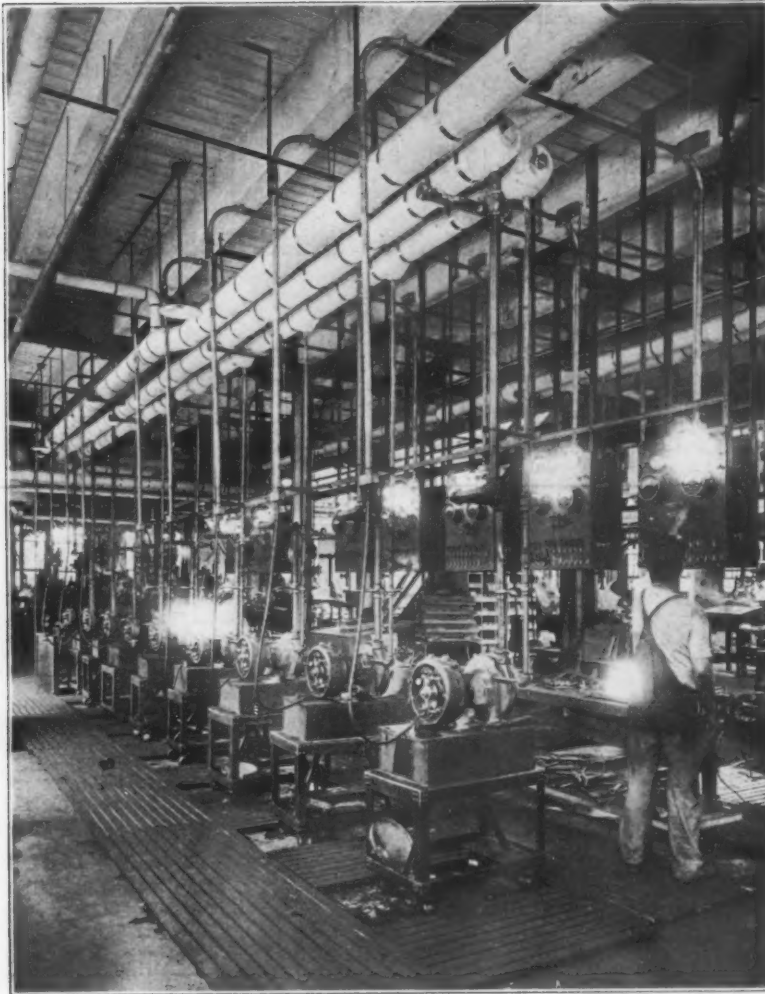


Fig. 2—Testing Turbo Generators for Locomotive Headlight and Train Lighting in Plant of Pyle-National Co. The machines are assembled, tested, painted and packed on the steel trucks. Bank of panels is double. Main steam line carries 225 lb. pressure

a 1200-gal. Fairbanks-Morse fire pump. The flooring is of factory maple laid on concrete.

The machine shop is served by a $7\frac{1}{2}$ -ton traveling crane controlled from the main floor. The mezzanine floor is served by a 6000-ton elevator. On this floor are located winding, nickel-plating, pattern-making and small machine departments. Conspicuous in the photograph are the heating and ventilating pipes, the machine shop being 50 per cent direct and 50 per cent indirect heated. The foundry heating is entirely indirect. Artificial light is provided by Westinghouse nitrogen lamps with reflectors.

RUNNING TEST FOR TURBO GENERATORS

An interesting feature is the equipment for testing turbo generators by an actual running test, shown in Fig. 2. This department is located under the balcony and consists of 20 test racks, each with its own panel. The steam pressure carried in the pipe-line overhead is 225 lb. From the main line, opposite each panel, drops a pipe to which the turbo generators are connected by a flexible coupling. The exhaust steam is carried back to the power house, and is available for heating and other purposes. The current generated is conducted by cable, the upper part of which is encased in pipe, to the test panel which is fitted with incandescent lamps, switches and the necessary meters for registering the performance of the generator. The steel trucks on which the turbo generators are tested, as shown in Fig 2, are removed and replaced by others when a test is completed. The machines are assembled on the

trucks, and rest on them while being tested, painted and packed for shipment. Incidentally, it may be stated that the turbo generators are built in capacities ranging from 350 watts to 3 kw., the larger sizes being for train lighting.

The construction of the gray-iron foundry building, Fig. 3, is much the same as that of the machine shop. It is served by a 5-ton Whiting traveling crane, also operated from the floor. Production is confined almost entirely to standard duplicate work and is largely done on molding machines. The cupola is located at the side near the end of the building. Adjoining the foundry is the core-room, containing two ovens large enough to accommodate trucks, and an oven of the drawer type, all of Whiting design. The company also has a brass foundry containing six furnaces.

The forge shop, shown in Fig. 4, is notable because of the high ceiling, ample space and good light it possesses, all of which afford a decided contrast with the old-time shop of its kind. It contains Buffalo down-draft forges and a Buffalo furnace, a No. 4 double Brown & Sharpe case-hardening and annealing furnace and a 1200-lb. Massillon steam hammer. It has Buffalo forge blowers direct connected to induction motors.

A view of the boiler room, Fig. 5, shows an interesting alignment of equipment. It contains two 200-hp. and one 75-hp. Page & Burton watertube boilers, which carry a working pressure of 225 lb. The boilers are equipped with Cox-Fulton stokers, and the ash is handled by a Brady siphon ash conveyor. To permit of convenient storage of six carloads of coal the boiler room is depressed 5 ft. below the engine room floor. The latter will contain a 385-kva. Westinghouse turbine generator set, and a 750-cu.-ft. Ingersoll-Rand air compressor. The power plant has a 150-ft. brick stack erected by the Heine Chimney Co. sufficient for 800 hp.

The Potter Title & Trust Co. has been appointed temporary receiver of the Pennsy Motors Co., Pittsburgh, builder of automobiles and motor trucks.



Fig. 3—Foundry Is Light and Airy. Work is principally standard duplicate castings, and molding machines are successfully used. Five-ton Whiting crane is controlled from the floor

The Copper Trade in 1917

The mystery in the copper trade during the year has been the gigantic increase in exports, says a member of the Bureau of Copper Statistics. The monthly average for the first six months is 45,000 tons as compared with the average of 27,276 tons in 1916, 23,029 tons in 1915 and 31,091 tons in 1913 (known as the Central Powers' war preparation year, German consumption representing fully 70 per cent of the entire amount) and against a 10-year average of 26,117 tons. Of additional interest is the fact that the exported metal is presumably for munition needs by the Allies and for 1918 consumption. Copper contained in exported brass amounted to 166,000,000 pounds additional.

Domestic consumption has declined probably as a result of this increase in exports or because of increased munition manufacture in England and France. In the six months' period it probably has been 70,000,000 lb. less than in the same period of last year.

Copper costs per pound for 47 companies increased to an average of 12½c. compared with 10.5c. for 1916. The Anaconda Co.'s production reports would indicate an increase from 10.2c. to 16c., but these items are sometimes a matter of expert bookkeeping. Certainly high wages will be exacted during the year, and this may mean average production costs per pound of 13½c. to 14c.

Total dividends paid during the six months by 47 companies amounted to \$93,000,000, as compared with \$66,000,000 for the same period last year. Total net profits for these companies were in excess of \$173,000,000. Total stockholders in the producing copper companies of this country, Canada, Mexico, and South America amount to nearly 600,000.

New Plant of Union Smelting & Refining Co.

Following an expansion which antedates even the present abnormal activity in the metal trades and industries, the Union Smelting & Refining Co. is now building a thoroughly modern plant in Newark, N. J. The company now operates plants for the production of white metal alloys at Nineteenth Street, and at Fourteenth Street, New York; and also operates a large plant in Baltimore. The growth of the business led to the acquirement of 11 acres in Newark. The tract is triangular and is bounded on its three sides by three railroads, the Pennsylvania, the Central of



Fig. 4—In Marked and Pleasant Contrast Is This Forge Shop with Those of Earlier Days. The ceiling is high, there is plenty of light. The forges are down-draft

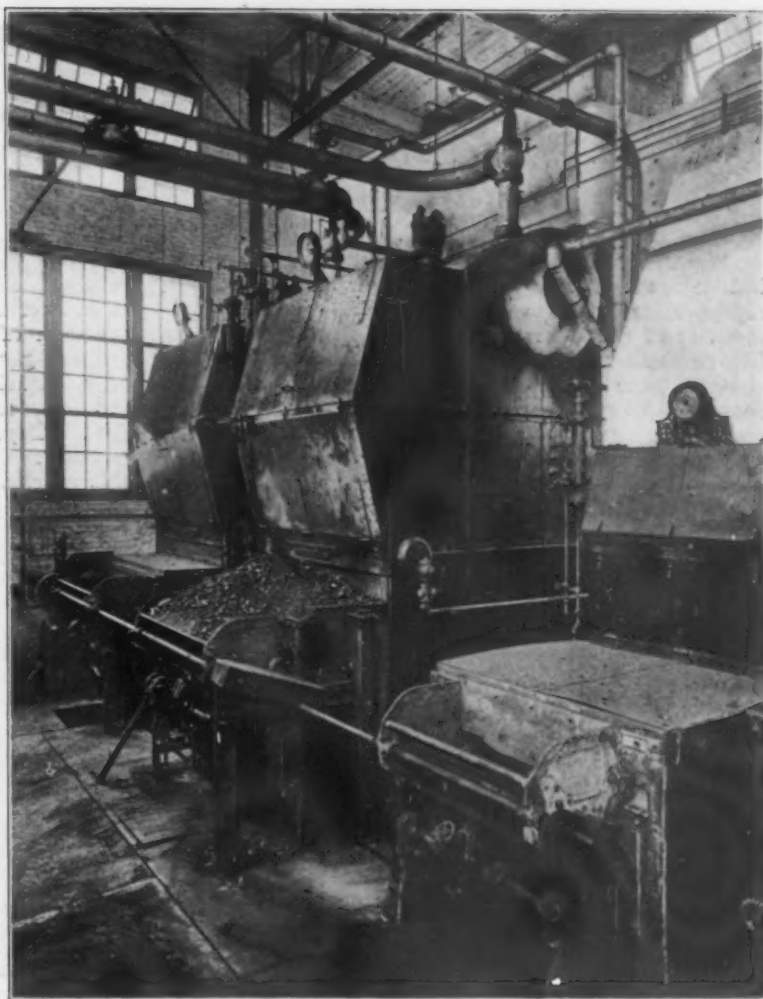


Fig. 5—A Modern Boiler Room Containing Two 200-Hp. and One 75-Hp. Boilers with Automatic Stokers and Syphon Ash Removers. The floor is 5 ft. below the engine room floor, enabling the storage of 6 carloads of coal. A working steam pressure of 225 lb. is carried

New Jersey and the Lehigh Valley Railroad. Utilizing these excellent transportation facilities, the new plant has an extensive switch yard of its own, with loading tracks, track scales, etc., to accommodate 25 cars.

The main building is of steel and brick modern fireproof factory construction 110 x 450 ft. Details provide for the maximum of light and air and the equipment is designed for economy of time and labor. All material within the plant proper is handled by traveling cranes. The receipt and disposal of raw material and the quick handling of the finished product is thus assured.

The planning of the plant has included such choice of sites for the present buildings as will permit future expansion which will not interfere with the full use of existing facilities. This administration building, which will house all the offices, is unique in many respects. Living rooms are provided for caretakers; a kitchen and dining room serve to supply meals to the staff, and the officers have private rooms with bath and shower. Like the main building, the construction of the office unit is of steel and brick and of pleasing architectural design.

The architects are Fletcher-Thompson, Inc., Bridgeport, Conn. L. D. Waixel, president of the company, says the entire plant will be in full operation by the end of the present year.

The Youngstown Foundry & Machine Co., Youngstown, Ohio, is building an 8-in. and a 10-in. mill for the Denner Steel Co., Buffalo, the mills being designed by the purchaser. The Youngstown company also has large contracts for roll lathes, large shears and spike machines that will keep it busy for some time to come. It will make shipment this month of two large roll lathes to the Whitaker-Glessner Co., Wheeling, W. Va.

War Board Proposes "Reasonable Profits"

Same Price for Government and Allies, but There Can Be No Commandeering for Other Nations

WASHINGTON, Aug. 14.—Prices liberal enough to include "reasonable profits" but much below the levels representing "the extortion now exacted for many commodities of prime necessity" will be fixed by the War Industries Board for all war material purchased for the United States or for the Allies. For the present the board will not undertake to control the prices of materials purchased for the general consuming public, but the Government will speedily exercise its control over the country's output of coal and coke, as authorized by the Lever act, and, should circumstances warrant, consideration will be given to the propriety of fixing the prices of other commodities in the interest of the private consumer. This program has been outlined during the past week in official and semi-official statements and will be put into force as soon as its details have been worked out. Meanwhile Senator Pomerene has introduced in the Senate a comprehensive bill, described elsewhere in this issue, authorizing the President to fix the price and regulate the sale of all products of the iron and steel industry, whether purchased by the American Government, the Allies or by private consumers.

A Great Buying Machine

As the result of numerous conferences participated in by many high officials of the Government, a carefully co-ordinated project for controlling the cost of all war material has been worked out and a big machine developed on a scale that is confidently counted upon to meet any emergency. The most important feature of this machine will be the War Industries Board with its purchasing commission, but working in close co-operation and in perfect harmony will be the Federal Trade Commission, the Food Administration, just created by the enactment of the Lever bill, the United States Shipping Board, an important function of which will be the regulation of ocean freight rates, and the Exports Council which, through the authority of the President to impose embargoes, will be able to conserve supplies of war material and food products and direct their distribution in the most economical and efficient manner.

The plans of the purchasing commission of the War Industries Board were formulated after several conferences with President Wilson and with members of the Federal Trade Commission. It has been the intention of the members of the board from the outset to insist that the Allies shall be able to purchase war material at the same prices paid by the American Government conditioned only upon a reciprocal agreement on the part of the Allies that the United States may buy in the factories of the allied countries at the same prices as those paid by their respective governments. Both the President and the members of the board have regarded it as desirable that private consumers should be able to secure the same prices as the Government and the President has heretofore expressed his views on this point in very plain terms. He has been apprehensive lest the action of the Government in forcing down the price of iron and steel and other important commodities when purchased for war purposes might result in an increase in the cost of those articles to the private consumer, intended by the manufacturer to offset the curtailment of his profits.

Same Prices for Allies

After careful deliberation, however, both the President and the members of the War Industries Board have reached the conclusion that there is now no authority in law to permit the Executive to fix the price for private consumers of any commodity not specifically included in the category of the Lever act, which has just received the President's signature. Under the terms of this act the President may regulate the oper-

ations of the industries engaged in producing coal and coke and fix the prices of those products. He may also within certain limitations regulate the supply and distribution of "foods, feeds, fuel, including fuel oil and natural gas, and fertilizer and fertilizer ingredients, tools, utensils, implements, machinery, and equipment required for the actual production of foods, feeds and fuel." Beyond this, however, it is doubtful that the powers of the Chief Executive extend. Having reached this conclusion the War Industries Board made public the following official statement:

"It is the purpose of the War Industries Board to carry out the policy recently announced by the President, and with which the members of the Board are in complete accord, that in the purchase of war materials in this country, our Allies shall be charged no more than our own Government has to pay. Guns and ammunition employed against our enemy are for our benefit as much when used by our Allies as when used by our own men; and it is obviously unjust to require our Allies when fighting our battle to pay our own people more than our own Government pays for the materials necessary to carry on the war. A mere statement of the proposition seems enough; and we are confident that our manufacturers, who have so patriotically responded thus far to the calls of our Government in this emergency, will readily accept this policy.

"But this policy has two important limitations. First: It is to be reciprocal. The Allies must henceforth apply the same principle in dealing with their own producers and in selling to us and in selling to each other. Second: the arrangement must be limited to war materials, in order to protect our own industry. We must not allow raw materials sold by our producers at prices patriotically conceded to our Government and its Allies for war purposes to be diverted to industry and trade abroad which may come in competition with our own manufacturers and producers. Measures will be taken by the Board for the best possible assurance that materials sold at a concession in prices for war purposes shall be applied only to war purposes.

"In fixing the prices to be paid by the Governments, we shall allow a reasonable profit, but shall deny the extortion now exacted for many commodities of prime necessity. We shall pay the just price so admirably defined by the President in his public statement of July 12th, as follows:

"By a just price I mean a price which will sustain the industries concerned in a high state of efficiency, provide a living for those who conduct them, enable them to pay good wages, and make possible expansions of their enterprises which will from time to time become necessary as the stupendous undertakings of this great war develop."

"The War Industries Board has not yet had and may not have occasion to deal with the question of prices to be charged the public, but it seems proper in this connection to direct attention again to the following from the statement of the President on that subject:

"We must make the prices to the public the same as the prices to the Government. Prices mean the same thing everywhere now; they mean the efficiency of the Nation whether it is the Government that pays them or not. They mean victory or defeat."

"The war makes enormous drafts upon many raw materials absolutely necessary to the industrial life of the Nation and to the ordinary existence of the people. This has resulted in the bidding up of prices for what is left of many materials of prime necessity in manufacture to a point obviously out of all relation to the cost of production, and involving unconscionable profits on our national resources, and the consequence

is that the cost to the public of all the articles in the manufacture of which such materials enter has reached a level never before known."

Judge Lovett, of the War Industries Board, who was delegated to give this statement to the press, amplified it somewhat in reply to questions as to the course to be pursued in the event that difficulty was experienced in inducing manufacturers to dispose of their products at reasonable prices. This possibility, he said, had been considered and he intimated that the board was fully prepared to meet any such contingency, although it was the unanimous opinion of its members that very few such occasions would arise. He also said that he believed authority could be found to enable the Government to secure reasonable prices for private consumers, but repeated the board's official statement that "it has not yet had and may not have occasion to deal" with this question.

Cannot Commandeer Except for United States

Notwithstanding the apparent confidence of the members of the War Industries Board that, under existing laws, manufacturers can be compelled to supply the Allies at the same prices fixed by the President to be paid by the American Government, the law departments of several large corporations have advised the managing officials thereof that the President has no power to commandeer supplies except for the United States. On steel wanted for Italy it is understood some steel companies have refused to book orders, leaving the price to be fixed after the Trade Commission's inquiry ends. It is privately admitted that the question of the Government's authority in such cases has been made an issue. That Government officials are doubtful of their authority in the premises is evidenced by the fact that they are calling attention to the provisions of the priority of shipment act, which they say would enable the President to deny manufacturers the use of the railroads for transporting their goods should they refuse to sell to the Allies at prices to be fixed by the President. Altogether it is quite evident that all the points involved in the purchasing program of the War Industries Board have not been finally settled.

The actual fixing of steel prices is still waiting on the report of the Federal Trade Commission as to cost of production. The President is extremely anxious that this report should soon be forthcoming as he regards it as important that there should be a full understanding between the purchasing agents of the War Industries Board and the trade before any further orders are placed. While considerable steel has been ordered pending the determination of the price, the Government's requirements are being quite generally held in abeyance in order that officials in charge of various classes of work may be able to estimate in advance the cost of their undertakings. At the Federal Trade Commission the only information available concerning the steel investigation is that it is being prosecuted with the utmost vigor but has proved a much more complicated inquiry than was anticipated at the outset.

Price-Fixing in Coal and Coke

It is now altogether probable that the first actual price-fixing to be done by the President will determine the cost of coal, both bituminous and anthracite, to the Government and to the public. There can be no doubt of the power of the President to fix the price of coal and coke, as authority is specifically conferred upon him by the Lever bill in the following language:

That the President of the United States shall be, and he is hereby authorized and empowered whenever and wherever in his judgment necessary for efficient prosecution of the war, to fix the price of coal and coke, wherever and whenever sold, either by the producer or dealer, to establish rules for the regulation and to regulate the method of production, sale, shipment, distribution, apportionment, or storage thereof among dealers and consumers, domestic or foreign: said authority and power may be exercised by him in each case through the agency of the Federal Trade Commission during the war or for such part of said time as in his judgment may be necessary.

When Secretaries Baker and Daniels, some weeks ago, repudiated the agreement with the coal producers

made by Secretary of the Interior Lane, Trade Commissioner Fort and Chairman Peabody of the Committee on Coal Production of the Council of National Defense, under the terms of which bituminous coal was to be supplied to all consumers at \$3 per ton with a reduction of 50 cents per ton to the Government, the President directed the Trade Commission to report as soon as possible upon the cost of producing both bituminous and anthracite coal. A preliminary report upon an inquiry previously begun in answer to a congressional resolution has already been made and the final report giving the desired figures is looked for daily. In the matter of coal the Commission will probably recommend a price, although in the steel investigation its work will be limited to ascertaining the cost of production. It is already intimated that the Commission will hold that \$3 per ton for bituminous coal f.o.b. the mine is too high and it is expected that the price to the consuming public will be fixed at not to exceed \$2.50 a ton, possibly with a further reduction for Government purchases.

While the Federal Government is thus seeking to bring about a reduction in the coal prices, steps are being taken looking to State regulation by a co-operative agreement. The Governors of all the States have been invited to attend a conference to be held in Chicago on the 16th instant for the purpose of bringing about a uniform regulation of the price of coal and a majority have already accepted the invitation. Many large coal operators will attend the conference and several have indicated their willingness to permit the Government to fix a price at the mines and to direct the distribution of the product.

W. L. C.

Steel Corporation's Orders Again Decrease

The United States Steel Corporation's monthly statement shows unfilled orders on the books on July 31 of 10,844,164 tons, a decrease of 539,123 tons from those reported June 30. It was the third consecutive month in which the unfilled tonnage of the corporation has shown a decrease. The total of unfilled tonnage is now the smallest since last October.

The following table gives the unfilled tonnage of the United States Steel Corporation at the close of each month since January, 1914:

	1917	1916	1915	1914
January	11,474,054	7,922,767	4,248,571	4,613,680
February	11,576,697	8,568,966	4,345,371	5,026,440
March	11,711,644	9,331,001	4,255,749	4,653,825
April	12,183,083	9,829,551	4,162,244	4,277,068
May	11,886,591	9,937,798	4,264,598	3,998,160
June	11,383,287	9,640,458	4,678,196	4,032,857
July	10,844,164	9,593,592	4,928,540	4,158,589
August		9,660,357	4,908,445	4,213,331
September		9,522,584	5,317,618	2,787,667
October		10,015,260	6,165,452	3,461,097
November		11,058,542	7,189,489	3,324,592
December		11,547,286	7,806,220	3,836,643

German Metallurgical Research

The question of establishing an institute for undertaking iron and steel research work in Germany, referred to in THE IRON AGE, July 26, in the article on "War Tasks of the German Steel Industry" has now been followed up by the holding at Düsseldorf of a conference of representatives of the iron and steel industries from all parts of Germany, at the instance of the association of German steel makers. It was urged that it was necessary to extend the system of metallurgical research in order to be equipped in every respect for the inevitable economic contest after the war. It was decided to form the proposed institute in association with Ch. Kaiser Wilhelm Gesellschaft and to raise the necessary funds almost entirely in the iron and steel trades.

The production of spelter in the first six months of 1917 was 364,000 net tons, according to returns of the United States Geological Survey, Department of the Interior, compared with 351,000 net tons in the last half of 1916. Stocks on hand are estimated at 33,000 tons as compared with 17,600 at the beginning of the year. A large number of retorts, about 35,000, including 14 complete plants, were reported idle June 30, in addition to the retorts engaged in refining prime Western metal and in redistilling zinc ashes.

FACTORY AID ASSOCIATION

Last Few Years Workings of an Organization Twenty-eight Years Old

BY H. A. RUSSELL*

In 1889 twenty-seven workmen and foremen held a meeting at York, Pa., to discuss plans whereby an association could be formed, which would have for its object the payment of a weekly sum to members in good standing who might become sick for a period exceeding one week. Payment of benefits were to be paid for the first week, providing the member was incapacitated through sickness or accident for at least that period of time. The weekly benefits also were to continue at a certain specified amount for 26 consecutive weeks and at a smaller amount, thereafter, as long as the member was physically unable to resume his normal or other wage-earning occupation. It was also proposed to make the dues high enough so that something could be paid at a member's death. It was further proposed to pay one-half of the amount of the death benefit at the death of a member's wife.

After several meetings, the beneficial association was formed and the remainder of the employees were asked to join, under certain restrictions. The original plan called for weekly dues of 10 cents from each member and assessments as might become necessary. It might be well to state here that the original charter members did not have any particular knowledge regarding insurance or an association of this nature. It was therefore necessary to provide a method whereby the members, whether sick or well, would be protected. Furthermore, it was not an easy matter to secure information which would assist them in fixing a weekly dues rate, which would, under ordinary circumstances, keep the organization solvent. It was therefore decided to make the membership payments on the basis stated.

The constitution and by-laws were drawn up and printed in the form of a booklet. A brief summary follows:

The association known as P. A. W. Beneficial Association No. 1 shall be composed of white male employees of the Pennsylvania Agricultural Works (A. B. Farquhar Co., Ltd., York, Pa.) at the time of becoming members. (The name was later changed to the Farquhar Beneficial Association.) Applicants for membership must be recommended by a member in good standing and must be employed in the works at least six months previous to the date of the application.

Article 2 stated that the regular meetings should be held on Monday evening of each week. Also that special meetings should be held, at any time, at the written request of seven members in good standing, but that no other business could be transacted at the special meeting other than that named in the call. All members, within a reasonable distance, were to attend at least four regular meetings each year; a quorum to consist of at least seven members in good standing.

Article 3 referred to the duties and election of officers, and article 4 outlined the duties of the relief, auditing and delinquent committees.

Article 5 specified that an applicant must be between the ages of 16 and 50 years, of sound mind and body and good health and possess a good moral character. That the proposing member must know the applicant at least one year and that a committee of three members must report in writing the result of their investigation as to the health, character and fitness of the applicant to become a member. That at the next meeting a ballot on the candidate must be taken and if one or more black ballots appear, the application must be referred back to the same committee, and members casting the black ballots must give reasons to the committee. In the event that at a later meeting, a second ballot is taken, and three or more black ballots appear against the applicant, he shall be rejected.

The fees for membership, covered in article 6, were as follows: For ages of 16 to 34, inclusive, \$1; for each additional year up to and including 44, 10c.; for each additional year up to and including 49, 25c.

The membership dues are now 14 cents per week. The first plan, which was in effect up to 1904, was to collect 10 cents per week and when necessary assess

the members. With a membership of slightly over 300 at the present time, the 14 cents per week per capita seems to be holding the cash reserve stationary. The recorder receives \$50 per year and the assistant recorder \$20 for the same period. The treasurer receives \$1 per annum. The recorder, treasurer and chairman of the trustees are all under bond of \$100 to \$500.

The benefits are paid as follows: Every member of the association, who through sickness or personal disability, is unable to follow his usual business or some other occupation, is entitled to \$4 per week for the first 26 weeks and \$2 per week thereafter, as long as the relief committee reports him as being entitled to benefits. At the death of a member in good standing, his widow or other legal heirs are entitled to \$150, payable within 60 days. In the event of the death of a member's wife, prior to the death of the member, the member receives \$75, payable within 60 days, and he also remains in full membership, providing, of course, that dues are paid regularly, and his heirs are entitled to receive \$150 at his death.

The average number of members in 1914, 1915 and 1916 was 306, 305 and 303, respectively. The number of members who received weekly benefits during the following years was as follows:

	1914	1915	1916		1914	1915	1916
January	18	17	25	July	14	11	16
February	15	16	18	August	18	18	17
March	21	23	16	September	18	21	16
April	19	26	15	October	14	18	9
May	17	19	19	November	12	14	11
June	15	13	16	December	16	19	14

There are four members who have been receiving benefits for two years or longer. There is one member who has received benefits for over 15 years. During the three years for which the summary has been worked out, the total number of days for which benefits were paid was as follows: 1914, 4319 days; 1915, 4704 days, and 1916, 4004 days.

The majority of the weekly benefits paid are at the \$4 rate, as it is the exception for a member to be sick or disabled for more than 26 weeks.

In these days of constantly shifting labor, it is not so easy as formerly to secure new members, and unless a certain proportion of new members are added from time to time, the association would pass out of existence. However, the membership has remained at about the same figure for some years past, and as this membership is sufficient to keep up the reserve, the only requirement has been that the membership committee had to hustle a little harder.

Some of the members like to keep their dues paid up a long time in advance while others just keep inside the danger line. Both of these methods simply indicate phases of human nature, with which we are all familiar. Since the first aid department was started in this factory, the length of time that a member might be on the sick, or rather disabled, list has been reduced considerably, we believe. This is rather hard to determine accurately because there is always the possibility that the member would have returned to work just as soon, with or without the first aid treatment, because some men, whose blood is in better condition than others, will throw off the possibility of infection in a cut or bruise. Again we have the help of the safety committees in reducing the number of accidents.

Once a member, always a member, as long as the dues are paid regularly. By this is meant that a man, once he has joined the association, may leave the employ of this company and work elsewhere without losing membership. This may or may not be the wise method because the next employment may be considerably more hazardous than that in which the member was engaged when he joined the association.

The National Castings Co., Marietta, Pa., announces the beginning of operations at its new foundry, Aug. 13, for the production of gray iron and semi-steel castings. The plant has a daily capacity of 50 tons.

*York, Pa.

United States Pig Iron Production—First Half of 1917

The American Iron and Steel Institute, 61 Broadway, New York, has issued its special statistical bulletin No. 5 (1917) which gives the production of pig iron in this country in the first six months of the present year. For the third time, in a six-month period, the production has exceeded 19,000,000 tons, the figures being as follows: First half of 1916, 19,619,522; second half of 1916, 19,815,275; and first half of 1917, 19,258,235. The production of charcoal pig iron for the six months was 180,235, or 180 tons less than for the last half of 1916. The details of the last half year's output are as follows:

HALF-YEARLY OUTPUT OF PIG IRON BY STATES.

HALF-YEARLY PRODUCTION OF ALL KINDS OF PIG IRON.

States	Blast furnaces.			Production—Gross tons. (Includes spiegeleisen, ferro-mang. ferro-silicon, ferro-phosphorus, etc.)			
	In blast Dec. 31, 1916.	June 30, 1917		First half of 1916.	Second half of 1916.	First half of 1917.	
		In.	Out.				Total.
Massachusetts.....	1	1	1	2	4,700	1,019	4,305
Connecticut.....	1	2	1	3			
New York.....	18	21	6	27	1,214,037	1,138,498	1,118,482
New Jersey.....	1	4	1	5			
Pennsylvania.....	127	136	25	161	8,286,076	8,220,208	7,790,514
Maryland.....	4	4	1	5	243,895	257,557	234,589
Virginia.....	9	12	8	20	202,777	197,108	231,937
Georgia.....	0	0	4	4			
Texas.....	0	0	2	2			
Alabama.....	29	34	14	48	1,366,728	1,396,157	1,494,479
West Virginia.....	4	4	0	4			
Kentucky.....	4	4	3	7	268,859	285,731	282,548
Mississippi.....	0	0	1	1			
Tennessee.....	11	12	6	18	162,009	193,365	201,296
Ohio.....	65	72	5	77	4,250,790	4,352,105	4,269,708
Illinois.....	24	22	2	24	1,938,152	1,984,360	1,810,137
Indiana.....	10	12	0	12	1,073,768	1,147,940	1,300,122
Michigan.....	12	12	2	14			
Wisconsin.....	5	6	2	8	417,542	393,783	392,864
Minnesota.....	3	3	0	3			
Missouri.....	2	2	0	2			
Iowa.....	0	0	0	0			
Colorado.....	3	4	2	6	190,180	247,444	227,254
Oregon.....	0	0	1	1			
Washington.....	0	0	1	1			
California.....	0	0	0	0			
Total.....	333	367	88	455	19,619,522	19,815,275	19,258,235

HALF-YEARLY PRODUCTION OF COKE PIG IRON.*

New York	18	21	2	23	1,214,037	1,138,498	1,117,918
New Jersey	1	3	1	4			
Pennsylvania	112	122	16	138	8,205,199	8,080,729	7,586,452
Maryland	4	4	0	4	243,895	257,557	234,589
Virginia	9	12	8	18			
Georgia	0	0	2	2	202,777	197,108	231,937
Texas	0	0	1	1			
Alabama	28	32	13	45	1,346,460	1,377,223	1,475,063
West Virginia	4	4	0	4			
Kentucky	4	4	3	7	268,859	285,731	282,548
Tennessee	10	11	6	17	161,128	191,944	200,874
Ohio	65	72	5	77	4,250,790	4,351,438	4,269,708
Illinois	24	22	2	24	1,938,152	1,984,360	1,810,137
Indiana	10	12	0	12			
Michigan	3	3	0	3	1,150,364	1,202,824	1,263,426
Wisconsin	4	5	1	6			
Minnesota	3	3	0	3			
Missouri	1	1	0	1			
Iowa	0	0	0	0			
Colorado	3	4	2	6	366,274	429,251	402,028
Washington	0	0	1	1			
Oregon	0	0	1	1			
California	0	0	0	0			
Total	303	335	62	397	19,347,935	19,496,663	18,874,680

*Includes ferro-alloys made with electricity.

ANTHRACITE AND MIXED ANTHRACITE AND COKE PIG IRON.

New York	0	0	3	3			
New Jersey	0	1	0	1	79,591	138,197	203,320
Pennsylvania	12	12	6	18			
Total	12	13	9	22	79,591	138,197	203,320

HALF-YEARLY PRODUCTION OF CHARCOAL PIG IRON.

Massachusetts	1	1	1	2			
Connecticut	1	2	1	3	4,700	1,019	4,305
New York	0	0	1	1			
Pennsylvania	3	2	3	5	1,286	1,282	1,306
Maryland	0	0	1	1			
Virginia	0	0	2	2			
Alabama	1	2	1	3	20,268	18,934	19,416
Georgia	0	0	2	2			
Texas	0	0	1	1			
Tennessee	1	1	0	1	881	2,088	422
Mississippi	0	0	1	1			
Ohio	0	0	0	0			
Michigan	9	9	2	11	131,637	127,986	124,618
Wisconsin	1	1	1	2			
Missouri	1	1	0	1	32,224	29,106	30,168
Total	18	19	17	36	191,996	180,415	180,235

TOTAL PRODUCTION OF PIG IRON ACCORDING TO FUEL USED.

Coke*	303	335	62	397	19,347,935	19,496,663	18,874,680
Anthracite†	12	13	9	22	79,591	138,197	203,320
Charcoal	18	19	17	36	191,996	180,415	180,235
Total	333	367	88	455	19,619,522	19,815,275	19,258,235

*Includes ferro-alloys made with electricity.
†Includes mixed anthracite and coke pig iron.

HALF-YEARLY OUTPUT OF PIG IRON BY GRADES.

HALF-YEARLY PRODUCTION OF BASIC PIG IRON.

States	First half of 1916.	Second half of 1916.	First half of 1917.
New York, New Jersey	573,244	632,596	535,286
Pennsylvania—Allegheny County	2,309,777	2,167,298	1,797,309
—Other counties	2,578,396	2,328,799	2,330,257
Virginia, Alabama, Kentucky	801,225	686,685	770,667
Ohio	1,199,267	1,257,609	1,412,324
Indiana, Illinois	1,416,246	1,451,455	1,466,677
Michigan, Wis., Minn., Missouri, Colorado	351,930	329,560	308,104
Total	8,830,085	8,854,002	8,620,604

HALF-YEARLY PRODUCTION OF BESSEMER AND LOW-PHOSPHORUS.

New York, New Jersey	223,456	229,564	224,345
Pennsylvania	2,566,539	2,966,468	2,943,671
Maryland	227,652	241,343	214,652
West Virginia, Kentucky, Tenn., Ala.	236,182	260,406	249,427
Ohio	2,377,073	2,556,158	2,235,910
Illinois, Wisconsin, Minnesota, Colorado	1,208,275	1,329,341	1,173,421
Total	6,839,177	7,583,280	7,041,426

HALF-YEARLY PRODUCTION OF FOUNDRY PIG IRON AND FERRO-SILICON.

Massachusetts, Connecticut	4,700	1,019	4,305
New York, New Jersey	331,651	193,951	271,555
Pennsylvania	559,767	427,447	417,088
Maryland, Virginia, West Virginia	192,454	196,764	236,549
Kentucky	43,151	40,929	29,617
Tennessee	132,264	172,983	187,068
Alabama	824,867	668,506	701,886
Ohio	465,106	322,091	330,402
Indiana, Illinois	91,742	60,296	58,844
Michigan	199,600	180,397	176,142
Wisconsin	165,155	146,292	143,258
Minnesota, Missouri, Iowa, Col., Wash.	75,953	59,559	45,734
Total	3,086,410	2,467,234	2,602,448

HALF-YEARLY PRODUCTION OF MALLEABLE PIG IRON.

New York	74,298	76,011	77,806
Pennsylvania	58,415	52,989	38,176
Kentucky, Ohio	139,682	146,498	205,098
Indiana, Illinois, Michigan, Wis., Mo.	188,444	185,149	188,902
Total	460,839	460,647	509,982

HALF-YEARLY PRODUCTION OF FORGE PIG IRON.

New York, New Jersey	6,780	3,112	3,607
Pennsylvania	54,807	91,081	98,910
Virginia	16,103	94,364	2,147
Tennessee, Kentucky	1,366	1,588	1,643
Alabama	19,570	15,380	17,156
Ohio	70,680	72,241	75,451
Total	160,306	179,035	198,914

*Credit. Due to change in grade.

HALF-YEARLY PRODUCTION OF SPIEGELEISEN AND FERRO-MANGANESE.

N. Y., N. J., Pa., Md., Ala., Ill., Col., Wash., Cal.	189, 46	226,488	210,432*
Total	189,046	226,488	210,432*

*130,965 gross tons ferro-manganese and 79,467 tons spiegeleisen.

HALF-YEARLY PRODUCTION OF OTHER GRADES.

New York, New Jersey	2,108	3,264	3,388
Pennsylvania	8,586	11,639	8,803
Md., Virginia, West Va., Tenn., Alabama	27,984	23,353	13,164
Ohio	5,006	4,261	10,523
Indiana, Ill., Mich., Wis., Minn., Missouri, Col., Wash., California	975	2,099	38,551
Total	44,659	44,596	74,429

PIG IRON MADE FOR SALE OR FOR USE OF MAKERS IN THE FIRST HALF OF 1917.

Grades	For sale.	For maker's use.	Total Gross tons.
Basic	1,312,529	7,308,075	8,620,604
Bessemer and low phosphorus	1,103,327	5,938,099	7,041,426
Foundry, including ferro-silicon	2,548,799	53,659	2,602,448
Malleable	509,946	36	509,982
Forge or mill	58,154	140,760	198,914
Ferro-Manganese	46,802	84,163	130,965
Spiegeleisen	53,229	26,238	79,467
All other grades	52,013	22,416	74,429
Total	5,664,789	13,573,446	19,258,235

Government Plan to Prevent Strikes

Council of National Defense Organizes Commission Which Will Arbitrate Disputes—Serious Trouble Has Been Threatened at Various Places

WASHINGTON, Aug. 14.—A comprehensive plan to prevent the halting of work on war contracts by labor disputes has been evolved by the Council of National Defense. The steps taken have been made necessary by a series of strikes which, beginning in the Eastern shipyards, have spread to several of the big cantonment projects and now include a considerable number of isolated plants working on rush orders for much needed war material. The council's plan will enable the Government to enforce the arbitration of all labor disputes by including in all contracts made hereafter an agreement on the part of the contractor to submit any controversies to Government mediation and to make the employment by him of workmen conditional upon their pledge to accept mediation and abide by the decisions of the mediators.

It has been evident for some time that, whatever the good intentions of the leaders of organized labor may be, they have not been able to prevent strikes nor to settle them when called. A factor in the situation has been the feeling expressed by subordinate officials of labor organizations that the officers of the American Federation of Labor have not shown a proper amount of zeal in utilizing the present emergency to secure advantages for labor, but have permitted themselves to be flattered by Government officials into pledging the support of labor regardless of the conditions of employment that might arise.

The members of the Council of National Defense have anticipated this development and propose to meet it by securing the pledges of the workers themselves to refrain from embarrassing the Government by holding up work on war contracts. The necessity for this action has been acute during the past week as the result of threats that a nation-wide strike on Government work would be called unless the demands of the carpenters' unions in the New York jurisdiction for a closed shop on Federal contracts were met. It was estimated by union leaders that this would mean the calling out of no less than 50,000 men and would bring to a dead stop the work on 30 army cantonments, several aviation camps, two port terminals, an important project in the extension of the New York Navy Yard and a dozen or more private shipyards doing work for the Navy Department and for the United States Shipping Board. The striking carpenters made but a single demand, namely, full recognition of the union, involving, of course, a closed shop and the discharge of all non-union men. That the union issue and not any substantial grievance was at stake is fully evidenced by the fact that the union officials agreed to call off the strike if all non-union carpenters employed on Government work would at once join the union, the additional promise being made that initiation fees would be remitted in this instance. When the contractors acceded to the closed shop demand, the strike was called off.

Representatives of both War and Navy Departments conferred with the local labor leaders and President Gompers of the American Federation of Labor is said to have used his good offices to induce the men to refrain from striking, pointing out that organized labor was morally bound to support the Government in the war crisis and especially to avoid strikes to enforce the closed shop or any other formal recognition of the union. Early in June, an informal agreement was reached between the American Federation of Labor and the Secretary of War under which labor disputes were to be referred to a committee of three representing the Department, the workmen and the public, but thus far this agreement has not been utilized in the settlement of labor disputes, as until quite recently no controversies of importance have arisen under the jurisdiction of the War Department.

Sporadic labor troubles in the plants of contractors

doing war work have emphasized the necessity of prompt action by the authorities. The War Department was advised a few days ago that a large number of workmen engaged in Utica, N. Y., factories in making steel helmets for the new national army walked out because of the refusal of the employing contractors to unionize their shops. It has been charged that these strikes are part of a widespread plot of pro-German conspirators to embarrass the Government. The contractors give little weight to this charge and have refused to accept Federal mediation, declaring that the strike is simply an attempt on the part of the workmen to take advantage of a critical situation to compel recognition of the union.

The details of the plan of the Council of National Defense to enforce the arbitration of labor disputes affecting Government contracts are set forth in a statement issued by the Committee on Public Information. A Labor Adjustment Commission has been created to be composed of nine members, three representing the Government, three acting for the employers, and three speaking for labor. The commission is given jurisdiction over all disputes concerning wages or conditions of employment in all establishments having contracts for the Government in accordance with the eight-hour laws of June 19, 1912, and March 3, 1913, and shall hear and determine all labor controversies in which more than 1000 workers are directly affected and may in its discretion hear and determine disputes affecting a smaller number. It is also authorized to appoint from time to time labor adjustment committees to hear and determine such disputes as may be assigned to them by the commission where less than 1000 workers are directly affected, such committees to be representative of the same elements as the commission. The awards of the Labor Adjustment Commission, or of the committees appointed by it, shall be made in each case not more than 30 days after the case has been submitted to the commission and shall be binding upon the employers and the employees in the plants affected for such period as may be expressed in the award, but not longer than 60 days after the close of the war. In all hearings before the commission or its committees, the employers and employees affected are given the right to be represented in the presentation of their respective cases by such persons as they may select under rules to be prescribed by the commission.

W. L. C.

Revised Demurrage Rules in Canada

A revised code of car demurrage rules has been issued in Canada. The free time allowance is as follows: 24 hr. after notice of arrival for clearing customs, reconsignment or reshipment in the same car, stopoffs, etc., and 48 hr. free time for the unloading of all commodities; 24 hr. are also allowed to give orders for special placement in the case of consignees not served by private sidings or industrial interchange tracks. The old rule allowed an additional 24 hr. for unloading coal, coke, lime in bulk and for loading and unloading certain kinds of lumber. For bulk shipments that arrive frozen additional free time will be allowed. Demurrage for the third day is put at \$1; for the fourth day, \$2; for the fifth day, \$3; for the sixth day, \$4, and for the seventh day and each day thereafter a charge of \$5 per day.

For the increased production of its monorail electric hoists, the Link-Belt Co. has practically completed an additional building at its Philadelphia plant. The hoists have lifting capacities ranging from 1000 to 6000 lb.

WAGE DISPENSING SCHEME

Arrangement Made to Expedite Payments and to Minimize Fraud

BY FREDERIC MERON*

The newly engaged manager of a European factory employing about 500 men coming unexpectedly into one of the departments where about a hundred men were employed, saw an employee standing in the middle of the shop with a tray full of envelopes containing the wages of the workmen in the department. He called them one by one to receive their money. The manager by making himself as inconspicuous as possible was able to watch and observe the true attitude of the workmen of the entire force. Not one was working whether they were paid by day or by piece work rate; it made no difference. Besides this, the machine tools either were stopped or turned idle. Some of the workmen watched their comrades to see how much they were getting; others were making plans for spending their money, or crowded around the pay clerk talking among themselves. In short, they were all taking time off. Even when the pay clerk left the department, order was not at once restored. In looking over the time sheets, one could also observe that the output of the pay-day was deficient.

One may admit that every workman loses at least two hours on account of such a system of paying wages. If one multiplies the number of workmen in a factory by two, and if he will not forget that the same rule applies to all machines and devices, he will have an idea of the value of the losses sustained by the company and thus of the importance of the question.

A simple and original system made it possible to pay off the entire force of the works in about 8 min. This was at the end of the day after the whistle had blown. That the reader may understand the reasons for taking some of the special steps of the system I find it necessary to explain that some dishonest employees of the company invented a trick to steal the company's money, and had done so for a long period of years.

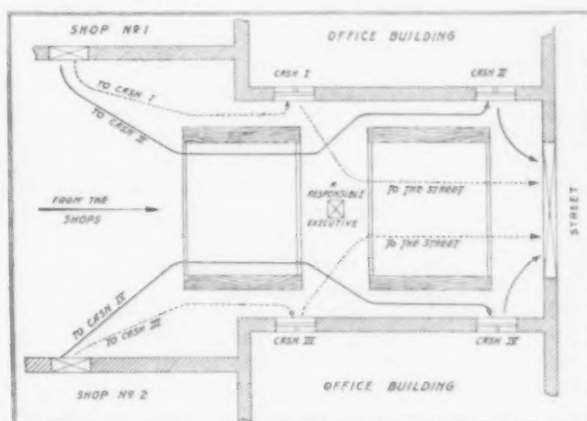
The pay list contained fictitious names or the names of workmen who had left the company some time before. The total sum indicated as representing the total amount of the payroll was exaggerated, and the difference was pocketed by the employees partners to the scheme. Nobody seemed to compare the actual number of workmen in the factory with the number of workmen mentioned in the list, nor had any one apparently thought to verify the pay-roll additions and the company used no special counting machines.

The accompanying drawing shows the arrangement adopted. Advantage was taken of an entrance passage in where there were four doors. In each doorway was fastened to the wall, with hinge and hooks, two boards. Whenever they were needed, these boards were let down to form folding desks. Inside the passage was placed a movable wooden barrier composed of parts fastened together, which took only a few minutes to put up or take down. These were intended to guide the workmen, as shown by the arrows. Signs with the numbers of the cash desks were placed in the proper places. Each pay card that the workman received gave the number of the cash desk where it was to be presented.

At about 11.30 a.m. each workman received a card, with the information necessary as to the amount due him, the number of hours he had worked, unit prices, fines, bonus, etc. He had therefore the entire lunch hour to check up all these figures. If he had any complaint to make, he was instructed to make it at the end of the lunch hour. Thus there was plenty of time for everybody to see whether his claims were just and to arrange matters if necessary. When the workman was satisfied he signed the card and he was not obliged to sign his name in a hurry while receiving his money from the clerk, nor to lose time for others while making his complaint. In Europe work-

men are obliged to leave a receipt when receiving wages.

Just before work stopped a list was made out, naming eight employees, usually four clerks and four foremen, who were to attend to payments. These eight employees were to come to the office, where they received for each desk envelopes containing the workmen's wages. They were to be in place at the desks with these envelopes a few minutes before closing time.



Portable Barriers Placed at the Entrance to a Factory Facilitate the Grouping of Employees Thus to Expedite Wage Paying

At the same time the foreman who had charge of placing the wooden barriers in the passage, posted himself between them in the position indicated to see that there was no crowding before the desks and also that the workmen came out with as little disorder as possible. When the whistle blew the men went directly to their respective cash desks, each holding his card in his hand, signed in advance. At each desk were the two men, namely, the clerk and a foreman. To the latter, who stood in front of the desk, each workman handed his card. The foreman showed it to the clerk posted behind the desk, and the latter gave the workman his money. The card was then dropped into a slot in a locked box, the keys being kept in the office, where the payments were later checked.

By calling each time different persons to make the payments, the same ones were seldom together at the desks. This was necessary to prevent thefts of funds such as previously occurred. As the number of employees taking part in this work was about 20, and they were changed about without any apparent system, there was little danger of their conspiring among themselves for dishonest purposes.

Aviation Supply Depot at Middletown, Pa.

Laborers have started getting the 21-acre plot of the Keystone State Fair grounds near Middletown, Pa., into shape for the construction of a building 364 x 901 ft., to be used as an aviation supply depot. A 40-ft. runway will surround the entire building. Gannett, Seelye & Fleming, Harrisburg, Pa., engineers, in charge, estimate the cost of the work between \$400,000 and \$500,000. The first building to be erected will be used as a supply depot for the assembling and distribution of air and water craft, wireless apparatus and machine gun parts. This will be followed by the erection of an aeroplane and hydroplane factory on adjacent ground.

Supervising employees of the Lebanon plant of the Bethlehem Steel Co. last Friday evening gave a banquet to W. L. Wolfe, the retiring superintendent of the Donaghmore plant, which includes the Cornwall, North Cornwall, Colebrook and North Lebanon furnaces. E. T. Entswile, his successor, acted as toastmaster.

The Nazareth Foundry & Machine Co., Nazareth, Pa., has been sold to New York parties, who will conduct the business as heretofore.

*Management engineer.

Canada's Import Trade with United States

Value of Metals, Minerals and Manufactures
Was Largest on Record—Some Unusually
Interesting Features of the Year Just Closed

—BY WILLIAM LEWIS EDMONDS—

Canada's import trade with the United States in metals, minerals and manufactures thereof during the fiscal year ending July 1, 1917, was in several respects of a more than usually interesting character.

In value the trade was the largest on record, being represented by the sum of \$156,333,801. This is \$10,273,138 in excess of the boom year 1913, when the total was \$146,060,663. It is, however, when we compare these figures with those for 1915 and 1916 that the most striking results are obtained.

Nineteen fifteen was the year which saw Canada's import trade, as a result of the general business depression obtaining, recede to the lowest point it had touched for some years, the total value of the imports of metals, minerals and manufactures thereof from the United States being but \$71,567,725, a decline of 51 per cent from the high record of 1913. Nineteen sixteen, however, saw a decided turn in the tide, largely the result of the substantial orders for munitions which were obtained by the manufacturers of Canada from the Imperial Government. Consequently, when the fiscal year 1916 closed, the imports under this classification from the United States had reached the sum of \$96,216,802. And now for 1917, as already pointed out, we have a new record established.

The increase in 1917 was 62.48 per cent. over 1916, 118.44 per cent over 1915 and 7.02 per cent over 1913, the year in which the previous high record was reached.

A Summary of the Trade of 1917

	From U. S.	Total All Countries	Ratio from U. S.
Iron and steel and mfrs. of	\$119,754,265	\$125,614,714	95.33
Machinery	33,154,265	33,859,689	97.91
Copper and manufactures of	8,567,018	8,599,764	99.62
Brass and manufactures of	5,725,213	5,885,731	97.29
Tin and manufactures of	8,865,045	10,317,431	85.92
Zinc and manufactures of	2,118,756	2,119,342	99.95
Aluminum and alumina	1,666,359	1,670,248	99.76
Lead and manufactures of	1,074,539	1,266,922	84.83
Ores, except iron	2,416,067	2,416,067	100.00
Other minerals and mfrs. of	2,313,097	3,025,923	76.46

But there is still another feature in connection with Canada's import trade in metals, minerals and manufactures thereof with the United States which is worthy of note, and that is the proportion it bears to the total imports from all countries. In the previous record year 1913, this proportion was 85.18 per cent. It receded slightly in 1915, being 84.83 per cent; but it rose to 93.04 per cent in 1916. During the last fiscal year, it did even better than that, namely, 94.50 per cent, which is a new record. It will, therefore, be noticed that in both value and proportion to total imports from all countries, a new record has been established in favor of American products.

Under the classification of iron, steel and manufactures thereof, Canada imported \$119,754,265 worth from the United States during the fiscal year 1917. This was not a new record, but it was only approximately one-half of one per cent below the high-water mark of 1913, for which year the aggregate import value was \$120,568,284. Could all the material wanted have been obtained, a new record would undoubtedly have been established. Over 1916 there was an increase of 39.66 per cent and over 1915 an increase of 116 per cent.

As the total imports of iron and steel and manufactures thereof from all countries during 1917 had a value of \$125,614,714 it will be seen that 95.33 per cent of the whole came from the United States. This was a new record, for in 1916 the proportion was 93.58 per cent; in 1915, 85.58 per cent, and in 1913, 86.97 per cent.

In the machinery imported during the fiscal year

1917 there was a decline of 7.42 per cent in the value as compared with 1913, when the high-water mark was reached, but there was an increase of 68.75 per cent over 1916 and of 123.65 per cent over 1915. And here again, could delivery have been obtained, the gain would have been greater.

The aggregate value of all kinds of machinery imported by Canada from the United States during the fiscal year 1917 was \$33,154,265, compared with \$19,645,894 in 1916, \$14,824,159 in 1915 and \$35,815,369 in 1913.

Although in value the imports of machinery from the United States did not reach the figures of 1913, yet, in proportion to the total imported from all countries, it was the largest in history, being 97.91 per cent of the whole compared with 96.61 per cent in 1916; 90.49 in 1915 and 91.61 per cent in 1913.

As the larger part of the machinery imported into Canada is placed under the classification "machinery not otherwise specified," it is not possible, even were it desirable, to enter fully into details. Under the "not otherwise specified" classification, the value of the imports during the last fiscal year was \$18,538,275. This was nearly six millions larger than in 1916 and a little over half a million dollars in excess of 1913. Under the definitely classified, portable engines with boilers rank first in value. Of these \$3,258,958 worth were imported from the United States in 1917. This was a little more than double the importations in 1916, but short of the figures for 1913 by nearly 50 per cent.

Paper and pulp machinery is beginning to figure prominently in the Canadian import figures. Four years ago, it did not appear at all in the returns, being hidden away under one of the general classifications. In 1916 the import value of this description of machinery of American production was \$319,247. Last year, however, it crossed the million dollar mark. Threshing machine separators increased from \$624,544 in 1916 to \$1,284,715 in 1917. But the latter was short of the figures for 1913 by over \$800,000. Imports of carding and weaving machinery from the United States were valued at \$1,488,820, which exceeded the figures for both 1916 and 1913 by over half a million dollars. Ore crushing machinery, which was \$413,924 in 1913 and \$328,939 in 1916, was \$601,825 last year. Neither rolling mill nor saw mill machinery was classified in the returns for 1913, but in those for 1917 the former figured for \$223,994 and the latter for \$186,897. In 1916 the figures were \$179,687 and \$133,506 respectively. Printing presses imported from the United States were valued at \$775,479, compared with \$380,184 and \$1,132,235 for 1916 and 1913 respectively. Type-setting and type-casting machinery imported was valued at \$660,659, compared with \$316,107 in 1916 and \$435,541 in 1913. Bookbinding machinery was \$311,525 compared with \$158,086 in 1916 and \$353,807 in 1913.

Enlarged Share of the Cutlery Trade

Notwithstanding that Canada's total import trade in cutlery is considerably smaller than it was before the outbreak of the war, owing to the difficulty of getting an adequate supply, the imports from the United States are in value more than double that which they were in any previous year, being \$609,073, compared with \$300,925 in 1916, \$202,533 in 1915, and \$288,354 in 1913. The increase in the year was 102.40 per cent. Compared with 1915 it was 196 per cent and with 1913, 111.22 per cent. The proportion which these imports from the United States bear to the total from all countries has also increased in a striking manner. Four years ago, when Canada imported \$1,389,122 worth of cutlery, the

Principal Canadian Imports from United States in 1916 and 1917 and Total from All Countries in 1917

	From U. S., 1916	From U. S., 1917	All Countries, 1917
Electric motors, generators...	\$863,128	\$1,397,483	\$1,400,436
Agricultural implements...	1,656,641	3,221,898	3,239,335
Axles and axle parts...	1,049,951	1,966,423	1,966,423
Bar iron or steel...	2,502,357	4,005,215	4,012,135
Canada plates, Russia iron, etc.	524,330	852,130	852,130
Castings, iron or steel...	1,090,128	1,127,740	1,128,818
Cast iron pipe...	65,927	133,491	133,491
Chains...	171,302	272,953	274,137
Locomotives...	190,617	912,380	912,380
Engines, gasoline and gas...	3,376,288	4,788,804	4,788,880
Engines, steam...	94,933	274,741	274,741
Boilers and parts of...	186,450	326,482	479,202
Fittings for iron or steel pipe	452,208	718,694	729,786
Spiegeleisen and ferromanga- nese...	90,513	372,670	504,212
Forgings...	759,344	1,155,775	1,166,374
Builders' hardware...	494,828	679,304	702,176
Iron or steel billets...	845,552	497,710	499,307
Iron or steel ingots...	375,319	466,191	466,371
Pig iron...	726,150	1,306,244	1,321,023
Iron ore...	1,735,322	3,342,171	4,332,657
Locks of all kinds...	200,026	324,145	327,339
Cranes and derricks...	275,625	450,572	450,572
Ore crushers, air compressors, etc.	328,939	601,825	631,047
Portable engines...	1,166,967	3,258,958	3,259,671
Threshing machine separators, parts...	287,637	452,595	452,595
Threshing machine separators	624,554	1,284,715	1,285,393
Sewing machines...	307,998	364,242	381,044
Adding machines...	145,815	358,624	358,934
Typewriting machines...	377,024	692,718	692,800
Machines for bookbinders and printers...	158,086	311,525	313,280
Printing and lithographic presses...	380,184	755,245	758,402
Paper and pulp mill machinery	397,132	1,084,030	1,133,131
Rolling mill machinery...	179,687	223,994	223,994
Saw mill machinery...	133,506	186,897	188,810
Carding, weaving and spin- ning machinery...	979,009	1,488,820	1,683,699
Machinery not specified...	12,140,216	18,538,275	18,895,761
Washing machines...	71,750	159,377	159,377
Wire nails...	36,485	273,930	273,964
Pumps, hand...	133,947	169,757	170,045
Pumps, power and parts...	618,198	934,918	954,589
Steel rails...	308,188	463,633	463,655
Railway fishplates...	49,611	108,171	108,687
Angles, channels, beams, etc.	3,181,020	6,674,891	6,675,383
Boiler plate...	184,536	608,606	608,606
Roller iron or steel of greater value than 3½ c. lb.	585,576	1,175,920	1,175,920
Iron tubing for bed mfrs.	177,309	233,234	234,276
Sheets, plates, angles, etc., for ships...	388,332	1,837,365	1,865,353
Galvanized sheets, flat...	1,161,156	950,823	986,264
Locomotive and car wheel tires in the rough...	319,322	963,102	1,023,575
Typecasting and typesetting machines...	316,107	660,659	660,942
Machinery for beet sugar fac- tories...	39,679	414,571	414,829
Tin plates and sheets...	3,256,156	6,334,732	6,479,652
Galvanized sheets, flat...	1,161,156	950,823	986,264
Skelp for making iron or steel pipe...	2,394,305	3,234,429	3,394,429
Wire rods...	1,904,705	2,925,711	2,925,711
Barb wire...	1,020,639	1,543,376	1,543,376
Boiler tubes for marine boilers	358,518	1,110,697	1,119,222
Wire, galvanized, No. 9, 12, 13 gage...	1,636,960	1,173,957	1,173,957
Wire for rope making...	71,650	109,805	201,363
Stoves of all kinds...	220,482	399,194	399,713
Roller iron or steel, hoop, band, scroll or strip, 14 gage and thinner...	575,573	1,311,406	1,314,029
Roller iron or steel sheets or plates, sheared or unsheared	558,518	1,531,831	1,531,912
Roller plates not less 30 in. wide and not less ¼ in. thick...	907,793	1,577,480	1,579,405
Roller sheets, 14 gage and thinner...	2,095,689	3,597,193	3,598,218
Screws...	71,941	209,173	209,175
Scales...	79,708	139,941	140,709
Shafting...	87,132	325,945	339,922
Switches, frogs, crossings and intersections...	44,208	117,804	118,604
Wrought tubing...	343,176	742,324	744,104
Granite or enamelled ware...	125,918	185,195	186,840
Ware, n. o. p.	92,480	145,394	150,456
Wire cloth and netting...	146,554	215,895	216,777
Wire, crucible cast, valued not less 6 c. lb.	65,879	110,328	110,414
Wire, covered...	159,524	187,656	212,758
Wire of iron and steel, n. o. p.	176,225	339,392	341,368
Wire rope, n. o. p.	136,383	188,586	424,407
Nuts, rivets, bolts, hinges...	184,923	544,507	549,931
Cutlery of all kinds...	301,925	609,073	780,387
Guns, rifles and revolvers...	486,259	642,551	665,268
Needles...	101,020	137,158	234,211
Steel plate for bridges and structural work...	896,074	1,409,191	1,409,191
Bars or sheets for shovel mak- ing...	56,850	111,401	111,503
Roller iron or steel and cast steel in bars, bands, hoops, etc., greater value 3½ c. lb.	1,822,810	4,880,266	4,891,744
Hand tools...	754,885	1,258,937	1,300,788
Manufacturers of iron and steel n. o. p.	5,346,884	8,666,620	8,935,950
Electric insulators, sockets, telephone and telegraph in- struments...	3,366,861	4,173,816	4,290,516
Nickel plated ware...	716,418	1,113,383	1,160,931
Gunpowder and other explo- sives...	798,586	863,059	997,407

proportion obtained from the United States was 20.75 per cent, while last year it touched 78.47 per cent.

Marked Development in Imports of Tin Plate

For some years tin plate of American manufacture has been gradually supplanting the British product in the Canadian market. Last year it practically monopolized the market, securing 98.07 per cent of the total imports, the value of the imports from the United States being \$6,334,732, compared with \$6,479,653 from all countries. In 1913, when Canada imported \$4,178,323 worth of tin plate from all countries the proportion credited to the United States was 86 per cent, but it dropped to 82 per cent in 1915, when the imports were the smallest for some years. With the revival in business in 1916, when a total of \$3,415,306 worth was imported, 95.34 per cent of the whole came from the United States. Compared with 1916 the tin plate of American production imported in 1917 showed an increase of 94.53 per cent, while the increase over 1915 was 145.40 per cent and over 1913 it was 76.23 per cent.

In total imports from the United States in tin and manufactures thereof, a new record was established, the value being \$8,865,045, compared with \$5,236,072 in 1913, the previous high-water mark. This was an increase of 69.30 per cent.

Copper and Its Products

While under the general classification of copper and manufactures thereof Canada's imports from the United States in 1917 were in proportion about the same as for some years past, namely, over 99 per cent, the value was the largest on record, being \$8,567,018, compared with \$7,279,695 in 1913, when the previous highest point was touched.

Outlook for the Current Year

What the current year's trade will be, time alone will determine. That the outlook is promising there can be no doubt, and the extent of Canada's imports of iron and steel and manufactures thereof will largely be determined by the ability of United States manufacturers to satisfy the demand. Generally speaking, the crops are much more promising than they were a year ago, while the fact that the Dominion has just successfully floated a loan for \$100,000,000 in New York will naturally tend to increase the volume of her imports from the Republic.

Will Build Wilputte Ovens

Announcement is made that the Wilputte Coke Oven Corporation, 6 Church Street, New York, has taken over the organization formerly operated by the Otto Coking Co., Inc., and will build the Wilputte regenerative by-product coke oven. The new company is financed entirely by American capital. Louis Wilputte, coke oven engineer, is president and general manager. A contract for 80 Wilputte ovens has just been awarded to the Wilputte Oven Corporation by the Steel Co. of Canada, Hamilton, Ont., and the new plant will be complete with by-product plant and coal and coke handling apparatus by December, 1918.

The Wilputte regenerative by-product coke oven has been installed or is under construction at the following plants: Mitsubishi Goshi Kaisha, Kenjiho, Japan, 50 ovens; Coal Products Mfg. Co., Joliet, Ill., 18 ovens; Tata Iron & Steel Co., Sakchi, India, 200 ovens; Woodward Iron Co., Woodward, Ala., 60 ovens.

The company will also build benzol apparatus, and plants of its construction are now in operation at Lackawanna Steel Co., Lackawanna, N. Y.; Republic Iron & Steel Co., Youngstown, Ohio; Citizens' Gas Co., Indianapolis, and Laclede Gas Light Company, St. Louis.

The fall meeting of the American Electric Chemical Society will be held at Pittsburgh on Oct. 2 to 5, at the William Penn Hotel. Social features are planned for the first day. In the morning of Oct. 3 and 4 papers will be read and discussed and on Oct. 5 industrial plants will be visited.

The Illiterate Worker in War Time

Progress Depends on Education—Some Suggestions in Regard to Teaching English—Bad Results Due to Ignorance—Obstacles in the Way

—BY WINTHROP TALBOT, M.D.*—

“WHAT possible difference does it make whether my men in the yard, shoveling or loading cars, or digging, can read or write? Can a man shovel faster, load more barrels, or do more rough work in a day because he can read? I don't want my men to be scholars. Workmen don't need educational frills.”

This kind of commentary becomes less general among managers so fast as study of production cost becomes more general. Probably the “Safety First” campaign has been one effective means of showing the fallacy of such reasoning, because the unlettered yard-hand who cannot read the danger sign may become through his ignorance a cause of greater money loss by avoidable accident than it would cost to teach reading and writing to every illiterate workman in the plant. A reason for eliminating illiteracy which is even more important than the cost of avoidable accident is the fact that in these days information, opportunity and advancement all depend on ability to read.

What is to be done about the teaching of English? The night schools start out bravely each year with a promising attendance, although they attract only hundreds where thousands are in need of instruction. At the end of two weeks, about one-third of those who attend have ceased attendance, and at the end of a few weeks the classes are small and often end prematurely. Some of the charitable organizations present notable figures of work accomplished in teaching foreigners the American language, but in spite of all efforts the number of non-English speaking people has steadily increased since 1880 and notably within the 15 years prior to the diminution of immigration in 1914 at the opening of the war.

Effects of Ignorance

The barrier set up by the absence of a common language becomes stronger, more threatening, misunderstandings occur, suspicion, race friction, waste and inefficiency interfere with normal industrial production, a state of things to be deplored in times of peace, but scarcely to be tolerated in war time. Is it not of the utmost importance to the nation entering now upon a struggle which already is drawing enormously upon even our huge resources, to remove all needless sources of misunderstanding and friction in industrial establishments? A few alert-minded managers have undertaken to require the use of English on the part of all operatives and employees. Some of the mills employing large numbers of French Canadians have been highly successful in this regard, and a number of automobile factories have regularly organized classes in English. But after all if we regard the whole industrial field, these may be considered as exceptional rather than as typical. The thousands of garment factories employing scores of thousands of Yiddish-speaking employees, and the mines, factories, mills, refineries and meat-packing establishments as yet have not given their attention to teaching English to their alien workers. They are apparently oblivious to the economic value of this important aspect of industrial management.

Probably the best example shown by the records of the past three years as illustrating good method in handling this problem is in an undermuslin factory in New York City, which has co-operated each year with the public schools in carrying on daily classes in its workrooms during work hours without loss of wage for its illiterate and non-English speaking women employees.

The following outline shows what has been accom-

plished each year for really Americanizing its Italian and Yiddish-speaking workers.

There are many difficulties technical in nature which prevent teaching of English from being effective. Many of these difficulties have not been studied at first hand in the places of employment, and as a result the school people have not successfully analyzed the reasons for the downward attendance curve in the night schools. As it is the purpose here to deal with the teaching of English from the point of view of the manager rather than from that of the teacher, no attempt will be made to enter into school methods or the details of school technique. It is important, however, to emphasize the fact that on the shoulders of industrial management rests the major share of responsibility for the alien's disabilities, not only industrial but also social and political, for it is clear that unless industrial economic pressure is brought to bear and men and women are led to realize that their jobs and advancement are affected to their loss by ignorance of English, it is hard to overcome the inertia and lack of initiative which keep them ignorant of the language.

A Bit of Experience

Tony Machetie, two years out from Sicily, grins pleasantly and shakes his curly black head when asked to come to school. He is earning good money and likes to play ball in spare time. Tony cannot speak English, but why should Tony worry? He can earn as much without English as with it. But if his big boss in the office made it quite clear to him that the works were really American and that American was the language which had to be mastered, probably Tony would be apt to agree and would buckle to the task. It would be poor policy perhaps to make hard and fast requirements of an arbitrary sort and attempt to force workers unwillingly; on the other hand, it is perfectly possible to set inducements which would make the learning of American not only natural but practically inevitable.

Changing of shifts is an interruption to classwork at night school and probably accounts for many who start and leave at the end of two weeks or four weeks. If a man is on a day shift for two weeks and then changes to night shift, of course attendance in a scheduled class becomes impossible, and when he is able to attend again, the class has progressed so far beyond him that he cannot make up the work and so falls out.

Shift work affects the attendance of women also on night classes because they have to be at home when their men folks are at home. Therefore in such cases the class work must be arranged to meet the convenience and needs of workers in this respect.

Another obstacle found in teaching English to aliens lies in the fact that their need of English is largely a matter of dollars and cents. Unless they know that the pay envelope will be better filled as a result of learning the language, there is difficulty in arousing interest. Interest in learning English being exceedingly limited especially among illiterates, in order to increase it there must be a close link between their industrial work and their classroom work. This, however, seldom is the case. Even the textbooks employed for the purpose of teaching English to aliens are almost always lacking in this regard; and speaking of textbooks, we find that many of the first principles requisite to arouse interest are lacking in nearly all of them. They seem to be based on the idea that the alien adult is a mere child with only the child's background of experience, but when a man has had the courage, ambition and initiative to leave his native land for a 5000-mile journey to a strange country, dependent wholly on his own strength, health and skill to earn a living; when,

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for instance, he has landed at Galveston and worked at Fort Worth on a farm, at Kansas City and Chicago in the stockyards, at Gary and Kenosha in steel processes, in New York in the subways, and Bayonne in oil refining, that man is no child in experience. The fact that he speaks Russian, Polish, Lithuanian, does not help him much in understanding American, and he may seem awkward, slow, and even stupid in the mistakes he makes, but his mind is often more keen than that of the foreman or the teacher if they were only alert enough to know it. He is not interested in Mary's thimble or the account of Fido wagging his tail, even though such be thrilling to the last degree for the enraptured schoolchild. Perhaps this sort of thing doesn't really interest even the little child. Fortunately we can now obtain something of more practical use than the conventional textbook for teaching English.

The Wrong Emphasis

Another fault in many classrooms is the emphasis laid on trying to teach English by repetition of phrases which would never be used in ordinary human intercourse and by the neglect to link up English words with their equivalents in other languages. It is perhaps unwise for the teacher to use the foreign language in teaching English, but it is of importance not to waste time and put a premium upon inaccuracy by failing to give the foreign equivalent of the words used in the lesson. Every lesson should be made plain and effective by the use of the balopticon, the stereopticon, the graphophone, and the telephone receiver; moreover, the work may be objectified to the greatest advantage by having at hand and in daily classroom use a full equipment of all the ordinary tools, utensils and materials commonly talked about, with the technical names of tools clearly shown and with appropriate descriptive labels attached.

Perhaps enough has been said in this brief article to indicate some of the difficulties, some of the advantages and some of the methods which should be taken into consideration by the industrial manager in dealing with the non-English speaking alien. Certain it is that it cannot be considered a waste of time in any plant, however rushed with wartime production, to take the comparatively few hours requisite to transform the uncomprehending alien into a worker able to understand ordinary English.

Will Discuss Labor Problems

The Civic and Industrial Bureau of the Merchants' & Manufacturers' Association, Baltimore, Md., has taken up the labor problem and A. S. Goldsborough, director of the bureau is hard at work on it.

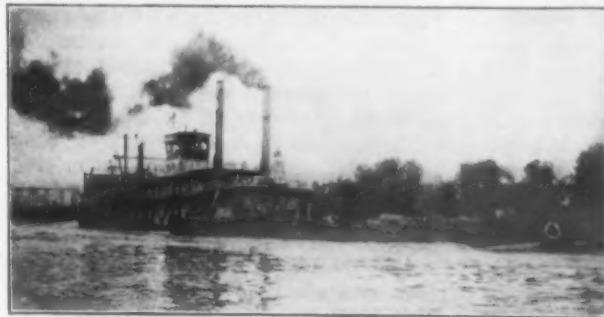
Through the efforts of the organization 28 employment managers of large manufacturing concerns held a conference recently at which the various problems were discussed. W. C. Robinson, of the Manufactures Committee of the association, presided. The conference considered the establishment of a Labor Clearing House by the bureau; certain advertising which is causing a curtailment of Baltimore's labor supply and producing restiveness among laborers, and the organization under the supervision of the bureau of a circle composed of employment managers which will meet at regular intervals for the discussion of labor problems for the purpose of bringing about closer co-operative action among the employment industries, thereby leading to a removal of some of the labor problems.

The Labor Clearing House plan was indorsed and strong resolutions were passed requesting the Baltimore press to refuse any out-of-town advertisements which seek to induce labor to leave Baltimore. The Employment Managers' Circle also was indorsed and Director Goldsborough authorized to proceed at once with the development of the plan.

The Cayuga Steel Co., Ltd., Auburn, N. Y., has completed the main buildings of its new plant for making crucible and electric furnace steel, and is about to begin operations with two 28-pot crucible melting furnaces and two electric furnaces, a hammer plant and rolling mills. A brief description of the equipment which is to produce straight carbon and alloy steels was given in THE IRON AGE of April 5, 1917.

New Water Route for Shipping Pig Iron

With a view of aiding the Government plan of conserving railroad rolling stock and using water transportation for freight wherever it is possible to do so, the Keystone Steel & Wire Co., Peoria, Ill., of which W. H. Sommer is president, has successfully concluded an interesting experiment, moving 1200 tons of pig iron over 681 miles from Sheffield, Ala., to Peoria almost entirely by water. The movement was over four rivers, the Tennessee, Ohio, Mississippi and Illinois, and from an operating standpoint was a complete success, though the trip was marked by a few minor mishaps. Whether or not the expense of the trip exceeds the present rail



Transporting Pig Iron by River

cost the company has not yet been able to determine, and may not be able to do so until a few more trips have been made. It is believed by the company that this is the longest inland movement of pig iron made by water by any single manufacturer.

The pig iron was conveyed by three barges towed by a tug, obtained from the Pittsburgh Coal Co. The pig iron was made at Birmingham and shipped by rail in 35 cars to Sheffield, 156 miles away. There were no adequate facilities available for loading the iron and the Government finally loaned the company machinery. The War Department took an interest in the Keystone company's experiment and sent a representative, Capt. W. S. Winn, to report on its success. At Peoria the iron was easily unloaded with the aid of an electric magnet.

If it is found feasible to make this waterway route a permanent one for the transportation of pig iron from Alabama to points in the Central West, there is said to be a possibility that a loading wharf may be equipped at Riverton, Ala., 40 miles below Sheffield, where machinery for quick loading would be provided. The Government's interest in the experiment seems to indicate that some action along this line may be taken.

Spain's New Iron and Steel Plant

A new iron and steel plant to be erected at Seville, Spain, is to have an initial capacity of 50,000 tons of pig iron and a like amount of shapes and ship plates per year. The iron ores will be mostly Spanish, coking coal will be obtained from the county of Durham in England and the gas coal for the basic open-hearth furnaces will come from Cordoba. The scheme includes a by-product coke plant with an annual consumption of 75,000 tons of coking coal, the waste gases being used in reheating furnaces. The slag is to be used for making cement.

The Parker Mfg. Co., Detroit, has elected the following officers: President and treasurer, Gorham C. Parker; vice-president, David J. Rice; secretary, Howard K. Chambers. The directors are the officers and Charles D. Bennett and Kenneth P. Albridge. The company, which had been operating since October, 1916, was incorporated in July with an authorized capital of \$75,000. It is manufacturing drill chucks and arbors.

The New England Machinery Co., New Haven, Conn., builder of machinery for electrically heating and driving rivets, has opened a sales office at 50 Church Street, New York.

Wonderful Record of Steel Exports

Very Heavy Movement in June Carries
Total for 1917 Far Above Other Years—
Machinery Exports Also Make a New Record

WASHINGTON, Aug. 14.—All records for exports of iron and steel by values fell before the huge totals shipped in June, which carried the aggregate of the fiscal year 1917 no less than 82 per cent above the level of 1916, exceeding that of any previous fiscal twelve-month by nearly 150 per cent. Tonnage commodities in June came within a hair's breadth of the record figures of last September, while for the fiscal year 1917 they scored a phenomenal gain over 1916. Machinery exports made a new record in June and for the fiscal year far surpassed the shipments of 1916. Obviously the submarine has had no influence whatever upon these unprecedented shipments, which are of special interest at this time in view of the establishment on July 15 of embargo regulations, which are counted upon to cause substantial reductions in our exports of certain important items of iron and steel.

Exports of iron and steel by values during June gained 56 per cent over the corresponding month of 1916 and 7.2 per cent over the high record of March, 1917. Commodities reported by tonnage gained 20 per cent in June over the same month a year ago and fell less than 2 per cent short of the high water-mark reached last September. For the fiscal year, the exports of tonnage iron and steel rose 40 per cent above the total for 1916, which far exceeded the record of any previous fiscal year. Shipments of machinery in June received a new impetus, breaking all previous records, gaining 3.6 per cent as compared with the corresponding month of 1916 and surpassing the high water-mark of last August by 1.4 per cent. For the fiscal year, these exports showed a gain of 43 per cent over 1916. While machine tools gained 1.4 per cent in June as compared with the corresponding month of 1916, they were 13 per cent below the record figures for May of last year when many large British and French munitions factories were in process of equipment. For the fiscal year, however, machine tools showed a gain of 38 per cent over 1916.

The value of all shipments of iron and steel products in June, 1917, was \$119,141,836 as compared with \$76,257,884 for the same month of 1916 and \$111,164,876 for March of this year, the highest previous record. For the fiscal year 1917, the total was \$1,129,341,616 as compared with \$621,209,453 for 1916 and \$251,480,677 in

1914, the highest level reached in any preceding fiscal year. Exports of machinery in June were valued at \$27,946,036 as compared with \$20,541,139 for the same month of 1916. For the fiscal year 1917, the total was \$262,241,278 as against \$182,677,065 for 1916. The best previous record, that of 1914, was \$115,658,814. Shipments of metal-working machinery aggregated \$8,587,248 in June, 1917, as compared with \$8,465,985 for the same month of 1916. For the fiscal year 1917, these exports totaled \$84,935,410 as against \$61,315,032 in 1916 and \$28,162,968 in 1915. Details of the exports of machinery in June, 1916 and 1917, and for the two fiscal years are given in the accompanying table.

Exports of Iron and Steel (Gross Tons)

	June		Fiscal Year	
	1916	1917	1916	1917
Pig iron	48,770	81,999	286,399	833,523
Scrap	15,867	9,692	154,709	237,801
Bar iron	6,056	5,952	70,519	64,682
Wire rods	18,045	17,128	171,528	147,258
Steel bars	61,017	52,258	625,138	749,998
Billets, ingots and blooms, n.e.s.	116,425	192,133	962,229	1,936,252
Bolts and nuts	2,156	2,798	30,844	29,546
Hoops and bands	4,007	5,876	41,256	48,089
Horseshoes	1,369	256	13,126	4,278
Cut nails	372	359	4,420	4,610
Railroad spikes	2,099	2,278	26,405	19,106
Wire nails	17,187	9,824	128,762	124,681
All other nails, including tacks	1,067	2,934	9,634	19,447
Wrought pipes and fittings	12,161	16,072	125,628	169,472
Cast-iron pipes and fittings	5,879	6,915	52,617	75,385
Radiators and cast-iron house heating boilers..	193	1,014	2,263	4,901
Steel rails	49,772	42,078	541,810	602,065
Galvanized iron sheets and plates	4,048	7,735	42,631	52,586
All other iron sheets and plates	4,058	7,735	42,631	52,586
Steel plates	18,662	61,197	271,280	422,396
Steel sheets	9,969	20,316	98,546	127,964
Structural iron and steel..	25,034	19,506	276,866	339,480
Tin and terne plates....	29,751	25,460	230,473	232,949
Barb wire	37,499	17,369	364,244	303,203
All other wire	30,333	21,919	251,518	242,229
Total	527,542	631,712	4,862,154	6,885,543

Exports of iron and steel for which quantities are given aggregated 641,712 gross tons in June, 1917, as compared with 527,542 tons in the same month of 1916. The record for exports of these commodities is still held by September, 1916, with a total of 643,763 gross tons.

Exports of Machinery

	June		Fiscal Year	
	1916	1917	1916	1917
Adding machines	\$117,972	\$210,584	\$1,074,299	\$1,846,802
Air-compressing machinery	84,354	109,396	574,396	1,135,661
Brewers' machinery	106	7,586	28,726	65,365
Cash registers	129,676	102,728	1,444,350	1,387,353
Parts of	9,777	3,073	118,545	114,126
Cotton gins	3,876	12,796	65,721	115,005
Cream separators	32,636	60,467	488,984	499,034
Elevators and elevator machinery	127,054	260,232	1,494,411	2,220,689
Electric locomotives	17,681	18,227	454,544	527,034
Gas engines, stationary	21,214	80,909	352,299	718,101
Gasoline engines	1,565,383	2,769,473	11,888,531	18,954,667
Steam engines	836,727	3,538,825	13,499,320	20,760,625
All other engines	664,716	390,292	3,463,036	4,890,149
Parts of	866,222	1,886,004	7,273,523	18,996,186
Laundry machinery, power	35,070	78,584	295,018	392,559
All other	13,460	31,936	252,723	314,380
Lawn mowers	26,341	35,722	201,258	199,715
Metal-working machinery (including metal-working tools)	8,465,985	8,587,248	61,315,032	84,935,410
Meters, gas and water	32,045	68,325	290,499	429,659
Milling machinery (flour and grist)	323,919	90,768	2,749,734	1,132,834
Mining machinery, oil well	148,456	180,279	1,332,246	1,922,305
All other	618,593	1,115,107	6,241,333	10,124,013
Paper-mill machinery	36,601	124,549	858,234	1,839,570
Printing presses	206,955	209,239	1,647,998	1,899,786
Pumps and pumping machinery	494,104	537,319	4,718,185	6,134,611
Refrigerating and ice-making machinery	31,591	113,829	686,918	904,032
Sewing machines	426,481	806,561	5,422,182	6,536,862
Shoe machinery	83,713	139,161	1,266,221	1,365,364
Sugar-mill machinery	397,801	710,398	5,987,491	11,024,767
Textile machinery	369,676	353,475	2,705,827	3,548,278
Typesetting machines	77,714	149,593	884,021	1,161,823
Typewriting machines	1,114,025	1,062,004	9,104,189	11,162,423
Windmills	105,888	51,100	1,087,964	895,222
Wood-working machinery, saw mill	31,135	34,359	360,688	458,877
All other	56,649	72,704	1,076,845	985,998
All other machinery and parts of	3,068,543	1,943,134	31,971,774	42,640,036
Total	\$20,541,139	\$27,946,036	\$182,677,065	\$262,241,278

Imports of Iron and Steel (Gross Tons)

	June		Fiscal Year	
	1916	1917	1916	1917
Ferromanganese	536	3,817	5,469	73,741
Ferrosilicon	536	869	5,469	8,715
All other pig iron	13,360	1,798	112,718	35,795
Scrap	3,868	15,598	96,012	223,834
Bar iron	1,251	142	8,241	4,383
Structural iron and steel	279	94	1,581	1,020
Hoops and bands	2	2	1	26
Steel billets without alloys	254	4,345	11,325	16,920
Steel billets	1,953	624	12,630	11,097
All other steel billets	4,711	970	53,944	14,067
Steel rails	91	139	1,709	1,866
Sheets and plates	91	2	802	612
Tin and terne plates	494	21	4,619	2,085
Wire rods				
Total	26,888	28,421	309,051	395,161

For the fiscal year 1917, these shipments aggregated 6,885,543 gross tons as compared with 4,862,154 tons for the same period of 1916. The accompanying table shows the exports for June and for the fiscal year ended June, 1917, as compared with 1916.

Imports of tonnage iron and steel continue to show small totals. Declines in the receipts of ferromanganese and steel rails have more than offset increased imports of scrap. The importations for the month, however, are slightly in advance of those for June, 1916, aggregating 28,421 gross tons as compared with 26,888 tons. The imports for the fiscal year 1917 were 395,161 gross tons as compared with 309,051 tons for 1916. The accompanying table shows the imports of tonnage commodities for June and for the fiscal year 1917 as compared with 1916.

Chester Shipbuilding Co. Reorganized

A reorganization of the Chester Shipbuilding Co., Inc., Philadelphia, has been announced. Hereafter the Chester Shipbuilding Co. will control only the shipbuilding plant at Chester, Pa., and the plant recently acquired at Bristol, Pa., will be under the control of the Merchants' Shipbuilding Corporation, which was recently incorporated by Arthur P. McKinstry, a lawyer, 60 Wall Street. Officers for the Merchants' Shipbuilding Corporation and the Chester Shipbuilding Co. are the same and have elected as follows: Chairman of board of directors, W. A. Harriman; president, R. H. M. Robinson; vice-president and comptroller, C. B. Seger, all of 165 Broadway, New York; vice-president, Carl W. Hamilton; secretary and treasurer, William M. Simpson, both of 50 Broad Street, New York; general manager, W. T. Smith; consulting engineer, C. P. M. Jack; engineering manager, Max Willemstyn, all of Finance Building, Philadelphia.

The Merchants' Shipbuilding Corporation has obtained a contract from the Emergency Fleet Corporation to build 20 or more steel cargo-carrying steamers. The Chester Shipbuilding Co. is reported to have received a similar contract. These contracts are based upon a tentative contract price, but the Government agrees to reimburse the companies in case of any loss, and will pay a substantial bonus for quick delivery of ships and the saving of costs of construction.

Permits were recently granted by the Commissioner of Navigation of the Delaware River for the construction of 12 steel shipways at the Bristol plant and four at the Chester plant. The Chester plant already has six berths.

Munition Steel Output in India

In the financial year 1915-1916 the Indian Government took 85 per cent of the output of the Tata Iron & Steel Co., Ltd., for munitions. India's production of iron and steel is now sufficient to supply the requirements of the country, according to a report in the London *Ironmonger*, and to send a fairly large tonnage to Australia and the Far East, where Indian brands are beginning to be well known. The principal customer is Japan.

THE IRON AGE has an inquiry from Norway for the names of manufacturers of machinery for converting sawdust into marketable products; also for the names of manufacturers of presses for making briquettes of sawdust. Replies addressed to this office will be forwarded.

WILL BUILD HEAVY GUNS

Tacony Steel Co. Organizes Tacony Ordnance Corporation and Will Erect \$1,500,000 Plant

The Tacony Ordnance Corporation has been organized by the Tacony Steel Co., Tacony, Pa., and will construct a large plant for the forging of 6-in. howitzers for the United States Government. The company has a capital stock of \$100,000, but will expend about \$1,500,000 for buildings and equipment. Purchases of equipment will be made through the War Department.

J. B. Warren, general manager and secretary of the Tacony Steel Co., which was formerly the Philadelphia Steel & Forge Co., is president of the new concern; W. C. Pearson is vice-president and O. W. Bird, Jr., treasurer. These three constitute the board of directors.

A site for the new plant has been acquired at Tacony, Pa., consisting of about eight acres. Several buildings, including a forge shop and machine shop, will be built at once. The machining of the big guns will be done at one of the Government arsenals.

It is understood that the Bullard Machine Tool Co., Bridgeport, Conn., will proceed with its plans to construct a plant for Government gun work, though no definite announcement has been made.

The Government's efforts to add to the ordnance plants of the country has borne fruit with remarkable rapidity, the plants of the Wisconsin Gun Co., Milwaukee, the Northwestern Ordnance Co., Madison, Wis., the Inland Ordnance Co., Bedford, Ohio, the Symington-Anderson Co., Rochester, N. Y., and the American Brake Shoe & Foundry Co., Erie, Pa., being already under way, while plans now under consideration for similar plants are said to involve the Otis Elevator Co., the Niles-Bement-Pond Co. and other concerns.

A Blast Furnace in Siberia

A Siberian blast-furnace plant, the Abakansk Iron Works, has been purchased by a Swedish financial group. The plant, located on the Yenesei River, had been abandoned owing to lack of transport, but is to be enlarged and re-equipped and started up for the manufacture of agricultural implements and machines on a large scale. The Atchinsk-Minussinsk Railway, which is now nearing completion, passes close to the works. The Abakan deposits, from which the iron ore will be obtained, have been worked in a desultory way since 1885. They are said to contain 12,000,000 tons of ore. The ores are magnetic and yield as high as 66 per cent of iron. The Abakan River affords excellent facilities for the transport of the ores and coking coal is close at hand. Coal from the Kuznetsk basin can also be utilized. In addition to above development another company is planning the establishment of a large metallurgical and coke plant near Kuznetsk. Hitherto the supplies of iron required for western and central Siberia have been obtained for the most part from the Ural district or South Russia. The development of the two undertakings, however, should result in the production locally of many of the iron products that are required in the territory such as agricultural implements, rails, mining machinery, iron roofing sheets, etc.

Tests of pipe coil and cast-iron heaters for warming air, as in forced blast systems, were made under the direction of Prof. John R. Allen, while professor of mechanical engineering, University of Michigan (now of University of Minnesota), and the report of the tests has been reprinted from the Journal of the American Society of Heating and Ventilating Engineers. It can perhaps be had on application to the American Radiator Co., 816 South Michigan Avenue, Chicago.

The American Sheet & Tin Plate Co., Sharon, Pa., is now employing women in its cold-roll department at the Farrell mills. Applications for positions have been received from about 50 additional women to take the places of men called into military service.

STANDARD TIN PLATE PLANT

Powdered Coal Equipment Has Been Installed— Gas Shortage Expected

The Standard Tin Plate Co., whose plant is located at Canonsburg, Pa., 23 miles from Pittsburgh, on the Panhandle route, Pennsylvania Lines West, has more than doubled the size of its plant in the past year, and now has one of the largest and most modern independent tin plate mills in the country. It was originally started in 1904, with four hot tin mills, but in 1906 six more were added. In the past year 13 additional hot tin mills have been built, so that the plant now contains a total of 23 hot tin mills, 23 sheet and 23 pair furnaces, and there are 18 24-in. cold mills serving the hot mills. The tinning department contains 46 jumbo tinning pots, of which 40 are for bright plate and six forterne plate. The sheet bar building is equipped with two 25-ton Morgan cranes. The bars are unloaded by these cranes. After being weighed, they go directly to the heating furnaces, and after being reheated, follow the usual processes of making bright andterne plate. The black pickling department is equipped with two 4-arm Mesta pickling machines, with a capacity for pickling about 1840 tons of plate per week. The white pickling department has one 4-arm pickling machine.

The plant has a monthly capacity of about 150,000 base boxes, about 95 per cent of which is bright plate, and the remainderterne plate. The Continental Can Co. has its Canonsburg plant just adjacent to the works of the Standard Tin Plate Co.

Main additions recently made by the Standard Tin Plate Co. are to the power house and the installation of modern powdered coal equipment, the latter having been built by the Bonnot Co., Canton, Ohio. It is probable there will be a shortage of natural gas the coming winter, and the company installed the powdered coal equipment, both from the standpoint of economy in cost, and also to be prepared against the expected shortage of natural gas.

Powdered coal is now used for fuel with very satisfactory results in firing the sheet and pair furnaces, while two of the nine annealing furnaces are also fired with this fuel, and seven are heated with natural gas, but these will also be changed to powdered coal as soon as new equipment now being installed has been completed, which will be about Oct. 1. The power house is contained in a brick building, and is equipped with two 300 hp. Crocker-Wheeler generators, power being obtained from the lines of the West Penn Power Co., which also furnishes power to all the cranes, also for electric lighting in all departments of the plant, and to the small motors in the tinning house. Of the 23 hot tin mills, 16 are now driven by two 1200-hp. Crocker-Wheeler motors, equipped with Mesta gears, eight mills being driven by each motor. The other seven mills will be driven by a third Crocker-Wheeler 1200 hp. motor, to be installed within a short time. Of the 18 cold mills, 14 are driven by a Crocker-Wheeler 1200 hp. motor. When the additional motor is installed, all the hot mills will be electrically driven. The nine annealing furnaces in the plant are served by two 25-ton Shaw electric cranes. Of the 46 jumbo tinning stacks in the tinning departments, one is being fired with powdered coal, and the others will be changed to this fuel later.

Probably the most important addition made to the plant is the powdered coal equipment. The coal is secured from the Canonsburg Gas & Coal Co., which has coal mines nearby. The powdered coal plant is being materially enlarged, and when additions have been completed this coal will be used entirely for fuel in the plant. The company has also made various other additions, these including a general machine shop for repair work, equipped with lathes, planers, etc., a new grease house for storing grease for the hot mills, a new millwright shop, and a new hot mill office. There are also being installed two hydraulic sheet scrap bundlers, built by C. Logeman Brothers, Milwaukee. These will have a capacity for handling 27 bundles of

sheet scrap per hour, each bundle weighing 450 lbs. The company has about 20 acres of ground, nearly all of which is taken up by mill buildings, the hot mill building being 1000 ft. long by 100 ft. wide, with lean-tos on either side of the same dimensions.

The Standard Tin Plate Co. was originally organized in 1903 by Louis Follet and others, Mr. Follet having been connected for some years with the Gas City, Ind., plant of the American Sheet & Tin Plate Co. Mr. Follet is president, B. W. Bennett is vice-president and treasurer, W. J. Reese secretary, and W. J. Lynch, for some years with the National Enameling & Stamping Co., Granite City, Ill., is general works manager.

Big Gun Plant Going Up in Rochester

Work has been started on the new plant for the Symington-Anderson Co., Rochester, N. Y., which has received a Government contract for 3000 3-in. guns, with a possibility that the order may later be increased to 4000. The Crowell-Lundoff-Little Co., Cleveland, has the contract for the building, which will be of steel frame and brick, 650 ft. long, 227 ft. wide and 30 ft. high.

The Symington-Anderson Co. was recently incorporated with capital stock of \$1,000,000, having been requested by the Government to undertake the building of guns. T. H. Symington, of the T. H. Symington Co., Rochester, maker of railway equipment, and the Symington Machine Corporation, is president of the new company, and M. H. Anderson, formerly of the Bethlehem Steel Co., is vice-president.

It is said that the contract which the Symington-Anderson Co. has received is one of the largest which has been let in Washington. The guns will cost between \$8,000 and \$10,000 each, it is reported, thus aggregating in the millions. The building will be constructed as quickly as possible, as it is to be a temporary one.

New Shipyard at City Island, N. Y.

The American U-Boat & Arms Corporation, 21 Park Row, New York, has recently acquired the ship repair yard of Hawkins & Miller at City Island, N. Y., and is rebuilding and equipping it. Four new shipways will be constructed, each 60 x 400 ft. and wooden, steel or composite cargo-carrying steamers of 3500 to 4000 tons will be built for the Emergency Fleet Corporation. The corporation has not received a formal contract from the Government, but expects one soon. Later on, a plan for building cargo-carrying submarine vessels will be submitted to the Government, delay in this matter being caused by controversy over submarine patents. Present plans contemplate the completion of six vessels a year. A two-story building, 60 x 380 ft., has been erected and contains plate shop, sawmill and carpenter shop, mold loft, etc. A machine shop, 70 x 100 ft., is being built and plans provide for a blacksmiths' shop, power house and administration building. A. J. Hyman is president of the concern and S. Wiebe is chief engineer.

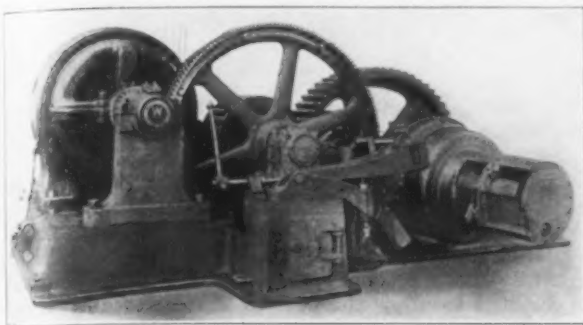
Afternoon Rest Period Instituted

A "seventh inning stretch" has been instituted at the Brooklyn plant of the Syracuse Smelting Works. At 3.15 each afternoon, the telephone operator sounds a long ring and for fifteen minutes there is a cessation of work. Among other innovations are a lunch-room and shower-baths for the men at the furnaces.

Coal production statistics compiled by C. E. Leshner, United States Geological Survey, show that in 1916 about 820 tons of coal were produced per employee, while in 1915 the production per employee averaged 725 tons. The total production in 1916 was about 590,000,000 tons, or about 11 per cent more than in 1915, while the number of employees was 721,000, or about 2 per cent less than the number in 1915. The average number of days worked in 1916 was 235 and in 1915 209.

Motor-Driven Wire Drawing Machines

Two types of machines for use in wire drawing shops have been further developed by the Morgan Construction Co., Worcester, Mass. One is a two-block



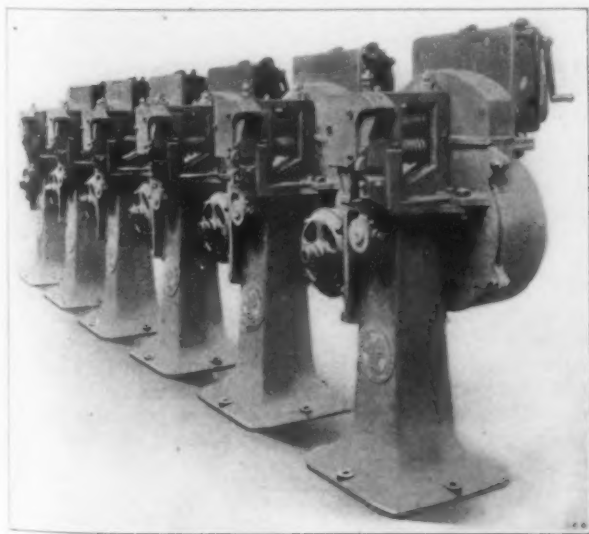
The Pull Is Close to the Main Bearing and the Coiled Wire Moves Out to the End of the Block Which Can Be Instantly Stopped by Operating an Internal Friction Clutch

horizontal spindle bull frame for drawing wire ranging from 7/16 to 1 in. in diameter, while the other is a wire pointing roll arranged with the driving motor mounted on the frame.

The special feature of the bull frame is the winding block. This is arranged so that while the pull, which ranges from 10,000 to 20,000 lb. at the die, is always close to the main bearing, the coiled wire moves out to the end of the block in a regular helix without bunching or crowding. The individual drive, it is pointed out, provides quick stopping and safety, and in addition a friction clutch is located in each block to instantly disengage it from the driving mechanism. In this way, it is pointed out, the drawing may be stopped at any time regardless of the strain on the block.

Square, hexagonal and round sections are handled by the machine which is intended for heavy work at high speeds. The machine illustrated is driven by a 150-hp. type CS Westinghouse induction motor, and other sizes driven by motors down to 50 hp. are built.

The wire pointing rolls are intended for shops that prefer individual drive, and among the advantages claimed for the arrangement of mounting the motor on the frame is a compact unit since the external apparatus and overhead connections have been eliminated. The machine consists of a pair of rolls revolving so as to feed material toward the operator, a number of grooves being provided to take care of various sizes of wire. The cross-section of these grooves diminishes around the circumference, so that the end of a wire placed in the open part of the groove is pushed back by the rolls and the end tapered. The pointed end is then threaded through the die in which the wire is to be drawn. These machines are driven by a 3-hp. CS West-



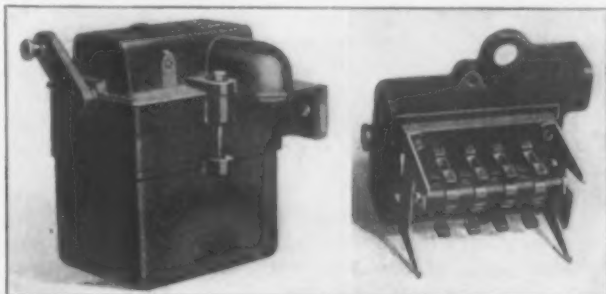
The Mounting of Electric Motors on the Frames of Wire Pointing Rolls Provides a Compact Unit

inghouse induction motor operating at a speed of 1700 r.p.m. The motor is started and stopped by a conveniently located starting box.

Reversing Alternating Current Switch

An oil switch suitable for use in starting alternating current motors up to 10 hp. by connecting them directly to the supply circuit has been developed by the Crocker-Wheeler Co., Ampere, N. J. The switches are also arranged for reversing operations and are characterized by simple and rugged construction. The switch consists of one set of moving and three sets of stationary contacts, an arrangement which gives a large break on two points for each pole.

The moving contacts are mounted on a fiber-insulated rod and are free to turn on their axis. This arrangement, it is emphasized, presents a new contact surface to the fixed contacts, thus prolonging the life of the switch. These contacts press against the center row of stationary contacts and one of the outer rows when the switch is in the forward position and against the center row and the other outside row of contacts when the switch is in the reverse position. The contacts are immersed in oil, the containing tank being bolted to the upper part of the switch. In this way, it is pointed out, oil cannot be splashed into the wiring chamber under ordinary conditions of use. The terminal board is provided with heavy binding posts and is rendered readily accessible by the use of a removable cover. No special fittings are required where the



Small Alternating Current Motors Can Be Started by Connecting Them Directly to the Supply Circuit and Reversed at Will

switch is installed in connection with conduits. The operating handle, shaft, star wheel and bell crank arm are one integral casting, the indications of the various positions of the operating handle being cast in the case. For mounting the switches on a wall, machine or post, lugs are provided.

The switches can be furnished with or without latches for holding the contacts securely in the desired position, but none are needed where the switch handle is operated by a rod or arm from an adjacent point. Where this form of operation is employed, it is explained that the friction between the arm or rod and its supports is sufficient to hold the switch contacts in the proper position. If desired, the switches can be furnished for single-throw operation, the movement of the handle being either to the right or the left.

Increased Efficiency

WASHINGTON, Aug. 14, 1917.—The railroads of the country are showing a marked increase in efficiency as the result of the adoption of the program of the War Board. The special committee on national defense of the American Railway Association announces that actual returns from railroads having 173,105 miles of line show that in May last year these systems gave service equivalent to carrying 25,426,845,011 tons of freight one mile, while this year they carried 29,522,870,109 tons one mile, an increase of exactly 16.1 per cent. This great increase in service was rendered with a very slight increase in the amount of equipment used.

The Shepard Electric Crane & Hoist Co. has located an export department at 30 Church Street, New York.

Government Control of Iron and Steel

A Bill Providing for the Taking Over of Manufacture and Sale, as in the Case of Coal and Coke

WASHINGTON, Aug. 14.—For the purpose of guaranteeing reasonable prices of iron and steel to private consumers as well as to the Governments of the United States and the Allies, Senator Pomerene of Ohio, a leading member of the Senate Committee on Interstate Commerce, has introduced a bill giving the President substantially the same authority with respect to the prices and distribution of "iron, iron ore, steel and their products," as is provided by the Lever act with reference to foods, feed, fuels and other articles included within the provisions of that measure. The bill has been referred to the Committee on Interstate Commerce and Senator Pomerene intends vigorously to urge a favorable report at an early date.

The bill, which follows closely the lines of the Lever act, provides that the President shall have power, whenever in his judgment it is necessary "for the efficient prosecution of the war and for the purposes aforesaid, to fix the price of iron ore, iron, steel and their products wherever and whenever sold, either by producer or dealer, to establish rules for the regulation of and to regulate the method of production, sale, shipment, distribution, apportionment or storage thereof among dealers and consumers, domestic or foreign." The authority of the President is to be exercised through the agency of the Federal Trade Commission "during the period of the war or for such part of said time as in his judgment may be necessary."

May Take Over Plants

Whenever in the opinion of the President any producer or dealer in iron ore, iron, steel or their products fails or neglects to conform to the prices or regulations determined by the President or to conduct his business efficiently, the President is authorized "to requisition and take over the plant, business, and all appurtenances thereof belonging to such producer or dealer as a going concern, and to operate or cause the same to be operated in such manner and through such agency as he may direct." In the event that the prices fixed by the President are not satisfactory to the producer or dealer, or if the compensation tendered for the requisitioning of his plant or business is not regarded by him as adequate, he will be entitled to receive 75 per cent of the amount tendered and will then be entitled to sue the United States in the Court of Claims to recover any additional amount claimed.

Government May Sell All Iron and Steel

If at any time the President considers it to be advisable for the successful prosecution of the war, he may require "all producers of iron, iron ore, steel and their products in any section of the United States, or in the entire United States, to sell their products only to the United States through an agency to be designated by the President, such agency to regulate the resale of such iron ore, iron, steel and their products and the prices thereof, and to establish rules for the regulation of and to regulate the methods of production, shipment, distribution, apportionment or storage thereof among dealers, consumers, domestic or foreign, and to make payment of the purchase price thereof to the producers thereof, or to the person or persons legally entitled to said payment." Within 15 days after notice from the agency so designated the producers of iron and steel are required to cease shipments of their products upon their own account and thereafter may make shipments only on the authority of the agency designated by the President.

Additional authority is granted to the Federal Trade Commission by the Pomerene bill to investigate the cost of producing iron and steel products "under reasonably efficient management at the various places

of production," and all the records of producers are required to be opened to the experts of the Trade Commission in connection with any such inquiry. In fixing maximum prices for producers the commission is directed to allow "the cost of production, including the expense of operation, maintenance, depreciation, depletion and to add thereto a just and reasonable profit." In fixing prices for dealers the commission is directed to allow the cost to the dealer and "a just and reasonable sum for his profit in the transaction." The maximum prices fixed by the President are not to be considered as involving any contract in which prices are fixed which was made in good faith prior to the establishment and publication of prices by the commission.

A penal section is added to the bill providing heavy penalties for refusal or failure to obey its provisions. The measure is further safeguarded by a provision that nothing therein shall be considered "as restricting or modifying in any manner the right the Government of the United States may have in its own behalf or in behalf of any other Government at war with Germany to purchase, requisition or take over any such commodities for the equipment, maintenance or support of armed forces at any price or upon any terms that may be agreed upon or otherwise lawfully determined."

Protection for Private Consumers

Senator Pomerene regards the enactment of his measure as of importance second only to the legislation giving the President the right to fix prices of iron and steel for the use of the Government during the war. Referring to his interview published in THE IRON AGE a fortnight ago and to the editorial suggestion in this journal that private consumers of iron and steel have some voice in any price fixing the Government may decide upon, he said:

I think it will be generally agreed that, without such legislation as is embodied in my bill, it will not be possible for private consumers of iron and steel products to obtain the material necessary to carry on their industries except at extortionate prices. We have had ample evidence in recent months that certain large manufacturers do not intend to protect consumers, but rather to obtain the largest possible prices for their products. There are many industries which supplement the activities that go directly to supporting the war, and these are certainly entitled to consideration. In addition, there is the large consuming public which ought not to be required to pay prices representing enormous profits which could not be obtained in normal times and which are only possible because of the war.

Chairman Newlands, of the Committee on Interstate Commerce, has heretofore expressed himself as strongly in favor of the principles embodied in the Pomerene bill as applied to iron and steel products, and it is probable that Senator Pomerene will have no difficulty in securing consideration of his bill in committee, although there are no indications as to how his colleagues will regard the measure. W. L. C.

Charles E. Butler & Sons, who purchased the interests of the late David Benjamin in the Pennsylvania Stripping, Quarrying & Construction Co. at Hazleton, Pa., have also secured control of the new machine shops and iron works started by Benjamin last spring. The new owners are continuing the erection and work of construction. The shops will be devoted to the making of mine cars, steam shovels and other supplies needed about collieries.

The Davis-Bournonville Co. has moved its Detroit office from 88 Adams Avenue, W., to 427 Grand River Avenue, where it will carry a complete stock of welding supplies and maintain a demonstration shop.

SHIPBUILDING ACTIVITIES

Keels for Many New Ships Have Already Been Laid Under Government Program

Baltimore, Md., shipyards now have under construction steel ships with a total approximate tonnage of 290,000 and wooden ships of about 77,000 tons. There are 39 steel vessels and 29 wooden vessels now building, in addition to tug boats, lighters, barges, etc. The Bethlehem Steel Co. is building 15 steel ships, the Baltimore Dry Dock & Shipbuilding Co. 20 steel vessels, the Riter-Conley Co. two steel vessels, while the Henry Smith & Sons Co., the Howard E. Crook Co. and the Maryland Shipbuilding Co. have contracts to build wooden vessels for the Government. The Stedden Shipbuilding Co., the Coastwise Shipbuilding Co. and Charles L. Rhode & Sons Co. are engaged in building tug boats, lighters, seagoing schooner barges and other small vessels.

The Newport News Shipbuilding & Dry Dock Co., Newport News, Va., now has 11 merchant ships under construction, in addition to a battleship, several torpedo boat destroyers and other Government work.

The Newcomb Lifeboat Co., Hampton, Va., has under contract about \$7,000,000 worth of Government work. The company now has a fully equipped plant which has been erected on Hampton Roads within the past year. This company has been building submarine chasers.

The Valk & Murdock Co., which was recently acquired by W. R. Bonsal of the Seaboard Air Line and associates, is equipping a yard at Charleston, S. C., and will be prepared to lay the keels of four ships in the near future. Whittlesey & Whittlesey have obtained an option on property near Charleston, S. C., and will erect a large shipbuilding plant as soon as a Government contract is obtained.

The Savannah Engineering & Construction Co., Wayne Cunningham, president, has launched a four-masted sailing schooner at its new shipyard near Savannah, Ga. Three other schooners are under construction. The Georgia Shipbuilding Co., which has a shipbuilding plant on Hutchinson's Island on the Savannah River, now has two wooden sailing vessels on the ways. The Terry Shipbuilding Co., which was awarded a contract for 20 composite vessels by the Emergency Fleet Corporation, is building its plant four miles above the city of Savannah on the Savannah River. Foundations have been laid for ways for 16 vessels. The National Shipbuilding & Dry Dock Co. has been incorporated recently with \$300,000 capital and is said to have closed several contracts for ships. The piling foundation for ways for one vessel on the site of its shipyard on Hutchinson's Island, Savannah, has already been laid.

There has been great shipbuilding activity at Brunswick, Ga., where there are now four shipbuilding plants, two of which have been turning out vessels since the early part of the year. The other two shipyards are now under construction, while a fifth plant has completed arrangements for a site. The latest company to select Brunswick, Ga., for a shipbuilding plant is the Oscar Daniels Co. of New York, contracting engineer. The Brunswick Marine Construction Corporation, which was established in April, 1916, has two auxiliary schooners of 1500 tons in which engines have already been installed. The Carpenter-Watkins Shipbuilding Co. has a contract for about 40 seagoing barges and is building ways to build wooden steamships of 2500 tons. The American Shipbuilding Co., organized by officials of the American Tie & Timber Co. and the American Shipping Co., is building five ways and has contracts for four wooden steamers of 2500 tons each for the Emergency Fleet Corporation. The United States Marine Corporation is building a \$2,000,000 plant at Brunswick, and expects soon to have work under way on six wooden steamships of 3500 tons for the Emergency Fleet Corporation. The Oscar Daniels Co. will, it is stated, build 12 steamships of 9500 tons each dead weight capacity for the Emergency Fleet Corporation. These

steamships will be built of steel fabricated at the mills in standardized sections.

Shipyards at Jacksonville, Fla., are extremely busy, the largest of these, that of the Merrill-Stevens Co. having three composite ships under construction. This company has a contract to build 16 ships for the Emergency Fleet Corporation. There are at present seven shipbuilding companies constructing both wooden and steel ships at Jacksonville, and by Sept. 1 several vessels ranging from 1100 to 3000 tons will be launched. The Hillyer-Sperring-Dunn Co., has recently launched a 3000-ton steamer and is building three steam barges and has laid keels for four wooden ships of 3000 tons each for the Emergency Fleet Corporation. The G. S. Baxter Ship Co., Inc., of Jacksonville has launched a 3000-ton schooner and keels for three other vessels have been laid at this yard. The Florida Shipbuilding Corporation is constructing a new plant and will be laying the keels soon for 3000-ton schooners. The Florida Marine Construction Co. is building ways for two small schooners and the Morey & Thomas Co. will begin work soon on four 3000-ton wooden ships. The J. M. Murdock shipyard will also begin work soon on four 3000-ton ships.

Three shipyards at Tampa, Fla., will soon be busy on wooden ships for the Government. The Tampa Dock Co. has a contract for four wooden ships. The Williams Shipbuilding Corporation and the Stuart Shipbuilding Corporation expect to receive similar contracts.

The recent announcement of the Tennessee Coal, Iron & Railroad Co. that it will build a large shipbuilding plant near Mobile, Ala., has called attention to the ideal location of Mobile for shipbuilding. The Kelly-Atkinson Construction Co. of Chicago, which has a Government contract to build 18 cargo-carrying vessels of steel and wood, will also have a plant near Mobile, as has previously been announced. The Alabama Drydocks & Shipbuilding Co. of Mobile, which recently took over and consolidated the plants of the Alabama Iron Works, the Ollinger & Bruce Dry Dock Co., the Gulf City Boiler Works and the Gulf Dry Dock Co., is said to be expecting a Government contract. The Murnan Shipbuilding Corporation will build four composite vessels at its yard near Mobile. The Henderson Iron Works of Mobile, now the Henderson Shipbuilding Co., has almost completed two submarine chasers and has applied to the Emergency Fleet Corporation for other shipbuilding contracts.

At Pascagoula, Miss., and at Moss Point, Miss., neighboring towns, there are five new shipyards, which have contracts for 34 vessels. These shipbuilders are Henry Piaggio, the Dierks-Blodgett Shipbuilding Co., Mike Fletcher, Poitevin Bros., Dantzer Shipbuilding Co., the Hodge Shipbuilding Co., and the De Angelo shipyards. All of these concerns are actively at work, some having already laid keels of ships, while others are equipping the yards and will be ready soon.

At Orange, Tex., 21 ships are under contract and the following concerns are operating there: International Shipbuilding Co., National Shipbuilding Co., Southern Drydock & Shipbuilding Co., Orange Maritime Corporation, Weaver & Sons and the Sabine-Neches Shipbuilding & Navigation Corporation.

At Beaumont, Tex., three ships for the United States Government are nearing completion. Howland & Nelson, Henry Piaggio, the A. H. Tarver Shipbuilding Corporation, the Lone Star Shipbuilding Co., McBride & Law, J. M. McCamon and the Todd Shipbuilding Co. are operating shipyards at Beaumont. The Longwell Lumber Co. plans to build wooden ships at Port Arthur, 20 miles below Beaumont.

Thirty hulls and ships are under construction by shipyards which have established plants along the ship channel near Houston, Texas.

A turbo-alternator having a maximum output of 70,000 kw. or 100,000 hp. is now in course of construction, according to J. A. Stevens, Lowell, Mass., in a paper read before the National Association of Cotton Manufacturers. The largest reciprocating engine yet built, he stated, belongs to the Lukens Steel Co., and is capable of developing 25,000 hp.

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Cost Finding Not the Way

There is little reason to expect the cost inquiry now being conducted by the Federal Trade Commission to furnish the right solution of the problem of war prices for iron and steel. It would be much more to the point if the money and talent expended in this inquiry were applied to an investigation of actual market and manufacturing conditions in the industry—to the questions of supply and demand, conditions in dependent industries, and to ways and means of increasing production. It is objection enough to the emphasis put upon costs, that there are very wide divergences in the costs of different producers, for reasons often explained. In plates, for example, the costs of some concerns which buy their pig iron in the market are from 100 to 200 per cent higher than those of the Steel Corporation.

The investigators might very profitably find out at what prices the bulk of the iron and steel now going into domestic consumption was put on the order books of the mills, and how far these are below the prices reached in spot transactions. In plates it will be found that prices on prompt delivery material have been in a number of cases three times those at which plates were contracted for that are now going to shipyards, boiler works, car works and bridge works. It is a market that has been thrown entirely out of ordinary alignments by an insatiate war demand, and there is just about as much practical value in studying costs to know how to deal with it as there would be in studying anatomy to find out what to do for a man whose organism was in nearly every particular abnormal. A steel market that is lacking in all the usual adjustments cannot without great harm be wrenched into alignment with cost of assembling raw materials and of turning out finished product.

The proposed intervention of the Government in the steel trade means much more than arriving at prices which will eliminate undue profits on steel bought for war by the Government and its Allies. It means unmistakably the beginning of a Government participation in the determination of steel values, of which more will be heard, especially if the consolidation of the industry, which has been marked in the past two years, goes farther.

The dangers of high prices in steel have not been overlooked by the manufacturers. Some of these situations will cure themselves. High prices for structural steel are limiting construction and in time this will bring them down. High prices for foundry pig iron will have the effect in time of limiting foundry operations, though it is to be said that contract pig iron now being melted in foundry cupolas costs the user less than half and in some cases not more than one-third the prevailing prices for spot iron.

Any commission or board or official considered wise enough to say what is the right price for steel to be furnished the Government needs to know many things about present conditions in the iron and steel trade and in the trades working up iron and steel, that are little likely to come to the knowledge of mere cost investigators. What is the effect of present prices upon the agricultural implement market, for example? What is the effect on the demand for railroad material, for all forms of hardware and metal goods? What has been the result of efforts of leading producers to hold in check prices for wire products, for example, or wrought pipe, or tin plate? How have advances in articles manufactured from iron and steel compared with advances made by the manufacturers of steel? In some cases, as is well known, the former have been the greater. And yet on such products no Government regulation is proposed.

A practical question of highest importance in getting all the plate producers of the country behind the Government's needs is how to get raw materials for some of these producers at prices which would permit every one of them to participate in Government orders, for all plate capacity is needed and more. If a pooling arrangement is feasible, under which the larger steel interests would engage to supply pig iron at less than the market price to such of the plate mills as must buy pig iron in the market, such an arrangement is worth looking into. Some manufacturers have thought of it, but we hear of no proposal at Washington to do anything so practical as that.

If in certain steel products considerable stocks are being carried by jobbers and at the plants of manufacturers, it would be the part of a wise gov-

ernment that essayed to regulate prices to find out how long it would take to work off these stocks, and therefore how long a market price should be maintained that would prevent loss to those carrying them. If steel prices have gone to excessive heights, it would be well to take account of actual conditions in the consuming trades, that price readjustments may not bring disaster; for the problem the Government faces, in so far as it touches the general market, is in some respects the very problem handled by the steel manufacturers through the Gary dinners of the period following the panic of 1907. At that time it was found highly desirable, in getting the market down from boom levels, to make the descent gradual.

The questions involved are of vastly more consequence than seems to be appreciated in some high quarters. The manufacturers of steel and the long line of industries engaged in working up steel have a great stake, and the country likewise, in the right outcome of steel price fixing. With their limited experience in business, some of the men who are having to do with it may make mistakes whose effects would be far reaching. The course of the steel trade for the remainder of the war and after the war will be materially affected by the decisions now made. Cost finding may be a justifiable occupation under certain conditions, but what is wanted now is an agreement between the Government and the manufacturers and consumers of steel on fair prices, taking current contracts or those of the past six months as a basis, and then the co-operation of all to meet every war demand and to work out the price and other readjustments that are sure to come.

The Falling Off in Pig Iron

The appearance of the American Iron and Steel Institute statistics of pig-iron production in the first half of this year directs attention again to the fact brought out by the statistics gathered monthly by THE IRON AGE, that the output in the first half of this year was less than that for either half of 1916. The divergence between the production of coke and anthracite iron as reported by THE IRON AGE monthly and as now reported by the Institute for the six months is only 8108 tons, or one-twenty-third of 1 per cent.

The total production of all grades, including charcoal iron, has been as follows: First half 1916, 19,619,522 tons; second half, 19,815,275 tons; first half 1917, 19,258,235 tons. The production in the first half of this year was 2.80 per cent less than in the second half of 1916 and 1.84 per cent less than in the first half of 1916.

Such a showing is very far out of line with precedents, considering the market conditions. The average price of pig iron was higher by 104 per cent in the first half of this year when compared with the first half of 1916 and by 74 per cent when compared with the second half. In the past, when there was nothing like such an incentive of rising prices, there has been a strong tendency for production to increase. In the past 30 years, indeed, the production of each half year has exceeded that of the preceding half year 22 times out of 30.

There has been an increase in capacity that should have made an impression upon the output. The blowing in of the second Minnesota Steel Co. stack on Feb. 19, 1916, would not affect the showing materially, as it came in so early in the half year, but River Furnace No. 3 came in on May 15, 1916; Cambria No. 9 on June 5, 1916; United at Canton on Nov. 22, 1916, and Gary No. 4 on April 14, 1917. Besides these entirely new furnaces some very old furnaces were added that were entirely out of the reckoning for the first half of 1916, but would have figured in production in the first half of this year had circumstances permitted.

So far as furnace capacity goes, there could easily have been an increase in production from the first half of last year to the first half of this year of more than half a million tons, whereas the statistics show a decrease of 361,287 tons. Thus there was a deficiency of not far from a million tons in the production in the first half of this year, and that whole deficit is to be attributed to a scarcity in coke. The statistics of the Connellsville *Courier* show coke production in the Connellsville and lower Connellsville region of 11,609,226 net tons in the first half of 1916 and 9,247,113 tons in the first half of this year, a decrease of 2,362,113 tons, or 20.4 per cent. The decrease is much more than the amount required for the production of one million tons of pig iron. That pig iron production did not decrease by the full amount was due to the increase in the production of by-product coke, which helped out to a very considerable extent. All the Southern States showed increased pig-iron production, thus eliminating the beehive operations other than Connellsville as a cause of decreased pig-iron production, while all the Northern States showed decreases, except Ohio and Indiana and a few States with very small production, and, of course, it was by-product coke that saved the day for Ohio and Indiana.

A curious feature in the furnace operations was the variation in production by grades of iron. In the total output there was an increase from the first half of last year to the second half of 1.5 per cent, and then from the second half of last year to the first half of this year there was a decrease of 2.8 per cent. Basic iron showed no increase last year, but decreased the same as other grades this year. Bessemer showed an increase of 12 per cent and then a decrease of 7 per cent. Foundry iron decreased 20 per cent and then increased 5 per cent. No general law of supply could be formulated that would explain these divergences, and the explanation probably is that some of the merchant furnaces endeavored to anticipate demand and overshot the mark. At the middle of last year it appeared that there would be an exceptional call for basic iron, and in the second half the production of foundry iron was neglected, with the result that foundry iron proved the scarcer of the two after all.

In the whole of 1916 the amount made for sale was 28.54 per cent of the total, while in the first half of 1917 the proportion was 29.52 per cent, which means that about 190,000 tons more was made by merchant furnaces in the first half of this year than would have been the case if the proportion had not changed.

The usual divergence is noticed between rated capacity and actual production. The annual statis-

tical report for 1916, just issued, gives the total blast furnace capacity on Dec. 31, 1916, at 45,864,525 tons. The production in the first half of this year was at the rate of 38,516,470 tons a year, or 16 per cent less. About one-fourth of the discrepancy can be attributed to shortage of coke. The remainder is to be accounted for by failure to make allowance for relining and other contingencies, overrating capacity and including in the potential list furnaces that are really out of the running. Thus, of 446 bituminous and charcoal furnaces listed as completed on June 30, 1916, only 371 were in blast during any portion of the next six months.

Unusual Methods of War Time

The ease with which results can be accomplished in time of war is being illustrated in numerous ways, some of which are commendable, while others approach very near to being dangerous and would, in truth, be dangerous if followed in times of peace. To the latter class belong the various extraordinary powers conferred upon the President by newly enacted laws. In a recent address before the Indiana State Bar Association, Indianapolis, just published in pamphlet form, Newton W. Gilbert, a member of the New York bar, describes what he calls "the Eclipse of the Constitution." Mr. Gilbert tells the familiar story of the country's state of unpreparedness before war was declared. In the emergency which demanded that a great deal be accomplished in a short time, many persons desired to leave it all to the President, as some believe he has power under the constitution to do anything he chooses which may directly or indirectly affect the army or the navy, while others say the constitution was really written only for times of peace, and still others do not care whether the constitution exists at all or not. Mr. Gilbert shows how authority to exercise functions as autocratic as those performed by any ruler in the world has been granted to the President by recently enacted laws. He does not question the character or wisdom of the present Chief Executive, but points out that he must share the responsibility of enforcing the laws with thousands of men, some of whom will not equal the President in wisdom and in patriotism. Mr. Gilbert refers to the letter written by Abraham Lincoln to Horace Greeley in 1862, in which he said he would do his utmost to save the Union, but attention is called to the fact that those who quote this letter to justify extraordinary action are likely to omit one sentence, which was: "I would save the Union; I would save it in the shortest way *under the constitution*." Mr. Gilbert indicates the danger of recent laws becoming engrafted upon our permanent political system. All desire first the defeat of Germany and her allies, but after the war there will be a struggle to re-establish the constitution with all its power.

Mr. Gilbert's words of description and warning are timely and cannot be too strongly emphasized. There are, however, other ways of accomplishing results which are proving effective. They are illustrated by the action of men in realizing the supreme importance of quick action by giving up their pet theories for the common good. This was shown in

the getting together of the manufacturers of aircraft in an association to end the litigation over airplane patents and allow the use of all patents for the common good. This is a highly patriotic action which will hasten the carrying out of the very extensive aviation program outlined by the Government. Another case is the agreement reached by opposing groups of senators to open hundreds of thousands of acres of rich oil lands to make the oil available to relieve the threatened shortage of gasoline and other oil products. A long controversy is thus ended and another contribution to the successful waging of the war has been made.

Still greater problems remain to be solved, such as the control of the liquor traffic, for it is realized that the output of many products, of which coke is a conspicuous example, is being seriously curtailed by the excessive use of intoxicating liquors. Drastic measures will be necessary, and perhaps some old precedents will be upset, but we believe that in the long run the common sense of the American people can be trusted to prevent them from wandering too far from ancient landmarks. Doubtless, as has been said, we shall never return to the haphazard economic life out of which we are trying to organize the nation for a bitter test of its stamina. May a better, stronger country result!

New angles of the operation of the excess profits tax on industry seem to appear daily. One of the late cases is that of a jobber whose profits last year were large; but being able to get good supplies, he has put the bulk of the profits into fresh stock. At the moment this is not moving very fast and it represents a heavy investment. No fear is entertained that the stock cannot be moved at a good margin above cost, but the assets thus represented are not liquid and banking accommodation will undoubtedly be necessary to make the tax payment to the Government. The jobber succeeded in accumulating larger stocks than usual, but for foresight and capacity he is automatically penalized. One may hardly generalize on this case, but it may carry the moral that effort to make over much money is still fraught with obstacles.

The War Spirit of the People

The common view of those who realize the seriousness of the war undertaking is that the people as a whole are not aroused as they should be. When the declaration of war was made on April 6 it was said that it would take some time for the people to realize its full significance; but a period of four months has now elapsed and there has not been as rapid a development of the mental attitude as was hoped.

Much good advice was given as to how men of vision could stimulate the mental processes of others, but it does not appear that much of this advice was taken. Employers were told how they could distribute suitable literature in pay envelopes, for instance, but this practice certainly has not been general.

So unsatisfactory is the situation as to the mental attitude of great numbers of the people that the National Security League has set out to cover

the country with speakers whose text will be the seriousness of the war effort we have undertaken. It is to be hoped that the project will prove feasible and that it will produce discernible results.

There is one unfortunate feature of conscription that has been overlooked. Its operation involves no propaganda, no effort to arouse enthusiasm. It is all done by rote. Insensibly its influence is to discourage enthusiasm, for every man feels, even if he does not recognize the mental process as such, that if his number is not called, or if he is exempted, he is clear. He stood the chance. With voluntary enlistment great efforts are made to create the mental attitude conducive to enlistment. The appeal is loud and is directed to all. Those who fail to enlist are likely at any rate to seek something they can do. There is a desire to serve, even if it does not rise to the point of producing enlistment.

Car Purchases for Government Railroad in France

For the railroad work which the United States Government is to build in France, 8997 of the proposed 17,000 cars have been contracted for. They have been well distributed, a fact which will serve to expedite construction, and include 6000 cars for standard-gage track of 30 tons' capacity, and 2997 cars for narrow-gage track. The awards are as follows:

Standard gage: American Car & Foundry Co., 1000 box and 300 tank; Pressed Steel Car Co., 1200 low side gondolas; Standard Steel Car Co., 900 high side gondolas and 800 box; Haskell & Barker Car Co., 600 flat and 300 refrigerator; Pullman Co., 900 box.

Narrow gage: Pressed Steel Car Co., 500 flat and 100 trucks for cars; American Car & Foundry Co., 166 tank and 700 low side gondolas; Ralston Steel Car Co., 400 low side gondolas; Magor Car Co., 400 low side gondolas; Standard Steel Car Co., 666 box and 165 gondolas.

For Belgian Railroads

WASHINGTON, Aug. 14.—The special Belgian Commission now in the United States is seeking loans aggregating \$142,000,000 of which \$100,000,000 is to be used for railroad materials and construction and for machinery for farms and factories. The remainder is desired for relief work. It is probable that the United States will advance \$50,000,000 at an early date with the understanding that the money is to be used on the Belgian railways and that by the time the amount is expended as much more will be forthcoming.

A large amount of machinery for the equipment of factories of various kinds is also to be purchased for Belgium, together with agricultural machinery and implements. The Germans have destroyed all the Belgian factories in the occupied districts and upon retirement wrecked many shops which they had built and operated in the production of supplies for their own forces.

California Silico-Manganese

The Pacific Electro Metals Co., San Francisco, is preparing to manufacture silico-manganese at Bay Point, San Francisco Bay. It is planned to utilize low grade manganese ores which are available in California, and the product will contain approximately 20 per cent silicon and 60 per cent manganese. The Beckman & Linden Engineering Corporation, of which J. W. Beckman is president, is engineer and manager of the enterprise.

The Northwestern Steel & Iron Co., Eau Claire, Wis., has posted the following notice to employees: "On Dec. 24, 1917 (the day before Christmas), every man in the employ of this company will receive a check for 10 per cent of his entire earnings from Aug. 1, 1917, to Dec. 24, 1917. Any man leaving the company during that time, either voluntarily or otherwise, will not receive this bonus. E. R. Hamilton, General Manager."

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MAKING RAPID PROGRESS

United States Shipping Board Lets Contracts for Steel and Wooden Ships

WASHINGTON, Aug. 13.—The United States Shipping Board has practically completed its contracts for construction work and it is now up to Congress to provide an additional half billion to enable the board to realize its comprehensive program in all its features. During the past week, the board has let contracts for 50 steel and wooden ships aggregating 200,000 tons at a cost of approximately \$25,000,000; it has perfected two contracts calling for the construction by two large corporations in Government owned ship-building plants of several hundred vessels; it has commandeered a large tonnage of privately owned merchant vessels to prevent their sale to foreigners; through the Exports Council it has served notice on Canada that the embargo on steel shipbuilding materials will become effective as to that country Aug. 15, and it has created a special bureau under the supervision of the board, the function of which will be the fixing of ocean freight rates in the transatlantic trade with a view to their substantial reduction from the present abnormally high level.

Under the terms of the two contracts for the construction of steel ships in Government owned plants, the United States will acquire two large tracts of land upon which all the necessary facilities for building cargo ships will be installed as rapidly as possible. These ships are to be built on a cost plus profit basis, the contractors for the ships buying their fabricated steel at prices to be fixed by the Government. The contracts for this construction were originally drawn by General Goethals, but were not signed. They are now awaiting assurances from the administration leaders in Congress that the money necessary to pay for the ships involved will be promptly forthcoming. As soon as they are executed the work on the two plants will be undertaken and rushed as rapidly as possible. As the result of changes made in the contracts, these ships will be built for considerably less money than was expected.

"Our preliminary work is about finished," said Chairman Hurley to the correspondent of THE IRON AGE in discussing the board's program, "and I am very well satisfied with the outlook. We shall get the ships we want and we shall get them on time. We will soon have under the jurisdiction of the board some 1500 ships exclusive of those for the construction of which contracts have been let or will be let in the course of a few days. I am confident that we shall have no difficulty in securing the additional appropriation for which we have submitted our estimate. As soon as we have adequate assurances on that point, we will be in position to sign the two pending contracts for the construction of fabricated ships which will about end the placing of orders for vessels, although from time to time thereafter we shall probably have occasion to contract for a few more as the opportunity may arise.

"Our policy will be to co-operate in every way with contractors and to assist them in completing their work at the earliest practicable moment. While we shall guard vigilantly the interests of the Government, we shall not stand on technicalities and will help rather than hinder everybody who is working for the Government in this connection. I am hopeful that I shall have an opportunity in the near future to make a personal visit to many of the shipyards where the work of building vessels for the board is going forward, as it will afford me satisfaction to get into close touch with the details of this big enterprise."

Shipbuilders who have taken contracts to build vessels for the shipping board have announced their intention to organize a national shipbuilding association with offices in Washington, the purpose being to provide a central agency to represent builders in their dealings with the Emergency Fleet Corporation and thus obviate the necessity of individuals coming to Washington to deal with subjects that could be quite as satisfactorily handled through a properly equipped organization. It is stated that B. W. Morris of the Groton Iron Works, Groton, Conn., will be named as president of the association and that G. R. Collins of Washington will be

vice-president. Offices have already been secured and will be in charge of a secretary assisted by an adequate clerical staff.

Pittsburgh Steel Products Co. Contracts

The Pittsburgh Steel Products Co., which has started to build a large seamless tube plant at Allentown, Pa., has placed a number of contracts and will give out others later. The contract for the power plant was placed with E. M. Wichert & Co., engineers and contractors, Pittsburgh. In order to protect the plant from floods, a sea wall will be built 500 ft. long, 24 ft. wide at the base, 35 ft. high and 2 ft. wide at the top. The wall will rest on hardwood piling, the specifications calling for about 1800 piles 25 ft. long, and there will be needed about 8000 cu. yd. of concrete. The piles will be steel pointed and driven into hard concrete. The contract for the pumps was given to the Wilson-Snyder Mfg. Co., Pittsburgh, and the electrical equipment was divided between the Westinghouse Electric & Mfg. Co. and the Allis-Chalmers Co. A contract for condensers for the power plant was placed with the Alberger Pump & Condenser Co., Chicago, and the Pittsburgh office of the Babcock & Wilcox Co. was given an order for 5000 h.p. Stirling water tube boilers. These will be fired by Roney stokers, built by the Westinghouse Electric & Mfg. Co. The contract for all the electric cranes has been given to the Morgan Engineering Co., Alliance, Ohio. There will be three main mill buildings, each 950 ft. long. They will be erected by the McClintic-Marshall Co., Pittsburgh, and will require close to 4500 tons of steel.

Diminishing Amount of Fabricated Steel Work

The records of the Bridge Builders & Structural Society, as collected by its secretary, George E. Gifford, show that in July 41½ per cent of the capacity of the bridge and structural shops of the country was put under contract. This corresponds to about 75,000 tons of material. It is the lowest figure since February, 1915, and save for the seven months immediately following the outbreak of the war in August, 1914, for which period the average rate of contracting was only 30 per cent, the only other smaller figure since 1911 was 37 per cent in September, 1913.

Will Open Local Offices

WASHINGTON, Aug. 14.—Secretary of Commerce Redfield makes the official announcement that it has been decided to open local offices for the handling of export licenses at Philadelphia, Norfolk, Charleston, Savannah, Galveston and Los Angeles. The details are now being arranged by Acting Chief Cutler of the Bureau of Foreign and Domestic Commerce, to which the Division of Export Licenses is attached.

The International Aircraft Committee, which will standardize specifications for metals used in making airplane parts, met at 25 Pine Street, New York, last week, and reached a decision as to the kind of steel to be used in making the parts, but details as to its composition were withheld. Final agreement as to uniform specifications was not reached, it was stated, but progress was made in that direction. F. G. Diffin, representing the United States Government, is chairman of the committee.

A table of the causes of industrial injuries, covering a five years' experience on the part of Pickands, Mather & Co., has been issued by the National Safety Council, Chicago. The groupings cover about 50 different causes and the figures give subdivisions for accidents entailing no disability and for trivial, serious and fatal accidents.

The Youngstown Sheet & Tube Co., Youngstown, Ohio, has awarded a contract to Stone & Webster of that city for the erection of an oil storage house to cost about \$125,000. The concern is completing the building of a supply storage house for the same company.

Labor Notes

Effective as of March 1, increases in wages have been granted to 1000 employees in the Coster shops of the Southern Railway, at Knoxville, Tenn. Six hundred machinists receive an increase of 8½ cents per hr.; 300 helpers an increase of 6½ cents and 100 apprentices an increase of 2½ cents.

An increase in wages of 12 per cent has been granted to the 1041 employees at the shops of the Illinois Central Railroad at Paducah, Ky. The advances range from 2 to 6 cents per hr.

The stockholders of the Rhode Island Perkins Horse Shoe Co., Providence, R. I., have voted to dissolve the corporation as a result of continued labor troubles. The company began business in 1867 with a capital of \$150,000 and was reorganized in 1891 with capital of \$2,750,000. The company has returned to its stockholders more than \$2,600,000 in cash and has its plant and quick capital intact.

A threatened strike at the Bridgeport Projectile Co., Bridgeport, Conn., was settled July 31 by the granting of a 10 per cent increase in wages, an 8-hr. working day and the establishment of minimum wages for different classes of machinists. A provision of the settlement was that the company should have the right to discharge men who were not capable of earning the minimum wage. When the company discharged 16 men Aug. 1 as incompetent under this proviso, the machinists walked out, but voted the next day to return to work and live up to the agreement. The discharged men returned to work at the old rate under a separate agreement.

Employees of the H. C. Frick Coke Co., Connellsville, who were members of the National Guard when the war came, or who have since enlisted, will be paid part of their salaries or wage rate during their service and every effort will be made to retain their positions until they are able to return.

The Wisconsin Iron & Wire Works, 1660 Booth Street, Milwaukee, on Aug. 1 reduced the working day for all employees to 9 hr., without reduction in the wages, which are based on the 10-hr. day.

The Inglis Mfg. Co., 283 Fifth Avenue, Milwaukee, maker of tanks, pumps, etc., has advanced the hour of commencing work from 8 o'clock a. m. to 7 o'clock a. m. and for the present will close at 4.30 instead of 5.30 p. m. The new arrangement was made at the suggestion of the employees and may be continued throughout the winter months.

An increase in wages has been given to union boiler-makers in St. Louis to hold until May 1, 1919. Inside men will receive 65 cents per hr., outside men 70 cents and foremen 80 cents. The minimum for helpers will be 40 cents per hr. Thirteen firms are affected. Three others did not sign the agreement, having operated open shops for two years.

Men employed at the scrap furnaces of the Duncannon plant of the Lebanon Valley Iron & Steel Co. have returned to work after a two weeks' strike. The men demanded an increase from \$9.25 to \$10.25 per ton. Although the company did not meet the demands new wage scales were adjusted.

Puddlers at the plant of the Reading Iron Co., Reading, Pa., have declared a strike with a demand for an advance in wages from \$9.75 to \$11.50 per ton. The company has offered the men \$10.50; this would be the eleventh increase since Jan. 1, 1916, when the puddlers were receiving \$4.50 a ton.

The New Jersey Zinc Co., Palmerton, Pa., is now paying laborers at the rate of 32 cents an hr., it is reported, the highest wages ever paid for unskilled labor in that section.

The John A. Roeblings' Sons Co., Trenton, N. J., has abolished its bonus system of 10 per cent a month to employees based upon money earned, and has established a flat rate increase in wages, with general average totaling at least the amount of the former bonus.

The E. I. duPont de Nemours Co., Wilmington, Del., has increased the wages of all salaried employees,

varying from 10 per cent for the highest paid men to about 25 per cent for the lower positions. The cash bonus rate has been changed to 20 per cent of the new salary rate.

The La Crosse Tractor Co., through B. F. Hamey, vice-president and general manager, has supplemented its recent offer to the factory employees of a bonus of 10 per cent of their wages from July 1 to Nov. 1, provided they stay with the company throughout the season, with an added bonus amounting to 8 to 10 per cent of their wages for the coming three months. This is contingent upon the amount of tractors produced up to Nov. 1.

The four lodges of union machinists in Bridgeport have voted to adopt the following minimum scale of wages: Tool makers, 60c. an hour; machinists, 50c. an hour; automatic and screw machine operators, 45c. an hour; toolsetters, 50c. an hour; assemblers and operators, 43c. an hour; machinists helpers, 38c. an hour; apprentices, first year, no rate set; second year, 25c. an hour; third year, 30c. an hour; fourth year, 40c. an hour. At the same time it was voted that eight hours should constitute a day's work in all shops. No active steps have been taken to put this program into effect.

New Steel Plant for Spain After American Plans

LONDON, ENGLAND, Aug. 15 (By Cable).

The Compania Siderurgica del Mediterraneo has been formed in Spain with a capital of 100,000,000 pesetas, of which 40,000,000 pesetas is reserved for Sota & Aznar, 40,000,000 pesetas will be offered to the public, and the remainder will be held in reserve. The plant will be located at Sagunto and will consist of a blast furnace, an open-hearth steel works and rolling mills for the production of shapes, ship plates and other forms of finished steel. The blast furnace will be supplied with the Sagunto ores available after export requirements are satisfied. Provision is made for an annual capacity of 100,000 tons of finished steel, increasing to 300,000 tons. The plans have been drawn by Frank C. Roberts, Philadelphia. Sota & Aznar are well known dealers in Spanish ores, with offices in London. For several years they maintained an office in Philadelphia.

Contracts for Sheet Mills

The Whitaker-Glessner Co., Portsmouth, Ohio, has let a contract for six additional sheet mills to be erected as an addition to its Portsmouth works. The Dravo Construction Co. was given the contract for the necessary concrete work and the McClintic-Marshall Co., Pittsburgh, will do all the steel construction work.

The six new sheet mills will have a weekly capacity of 600 tons and are expected to be in operation by Jan. 1, 1918. These new mills will make 16 in all that the company will have in operation at its Portsmouth works.

The import trade of European Russia in 1916 (\$545,853,000) increased 100 per cent over the 1915 figures and came within \$83,000,000 of the imports in the normal year 1913 (\$628,577,000). Moreover, since the official figures do not include munitions, the value of the goods actually received and requiring transportation must have been greatly in excess of the value recorded. When it is considered that in 1916 European Russia received goods by two routes only (Archangel and Scandinavia-Finland), while goods were entered at 44 ports in 1913, it is easier to appreciate the tremendous freight traffic Archangel and the Russian railroads were called upon to handle and the great congestion that has made necessary the strict limitation of imports.

The Youngstown Sheet & Tube Co., Youngstown, Ohio, is about to place contracts for the erection of 125 houses for employees, and also a store building on its coal property in Greene county, Pa., and the buildings are to be completed in about one year.

Iron and Steel Markets

ORDERS PLACED FOR ITALY

Government Prices Made the Basis

Labor Situation Made More Acute by the Draft— Steel Billets Lower

Government orders for steel are increasing and the export movement is large in spite of embargoes; but ordinary domestic business in iron and steel is insignificant. Pressed by some of its Allies to get for them much needed steel, the Government is hurrying its cost-finding inquiry, but as telegrams for iron ore costs only went out this week the investigators are some distance from the end.

Without taking a final position on the question of selling to the Allies at the same prices as to the Government, steel manufacturers have accepted orders from officials at Washington this week applying on 10,000 tons of annealed wire and 20,000 tons of wire rods for Italy, prices to be fixed after the Trade Commission's findings are made up. When these Italian inquiries first appeared some weeks ago, 4.50c. was quoted on the wire and \$85 on the rods.

While the general question is in abeyance, it is understood that some steel interests have expressed a willingness to take business from the Government at prices to be determined later, even though the material is for an Ally.

For the American army in France a 20,000-ton inquiry for 25-lb. rails has come out, for use in portable tracks. Unlike the recent contracts for 150,000 tons of 80-lb. sections no price is fixed, but bids are asked. Contrary to reports, none of the 80-lb. rails were refused by the mills, but on two of the lots concerning which a question was raised as to price, orders to go ahead with the rolling have not yet been given, though all these rails are wanted in six weeks.

While specifications on the Government's requirements for its standardized merchant ships will not come to the steel mills until early in 1918, plates are being placed each week for Government vessels that are being constructed after builders' plans. Independent steel companies are now getting considerable orders for such steel in view of the large tonnages already taken by the Steel Corporation. The latter, it is estimated, has on its books nearly 800,000 tons of steel for the Navy, for Government merchant ships and for private yards.

Of the 17,000 cars wanted for the American railroad in France 9000 have been placed in the past week, and thus far about 75,000 kegs of spikes have been ordered.

What was generally known as to the effect of present high prices on construction is definitely indicated in the report of July bookings representing 41.5 per cent of the country's fabricated steel capa-

city. This is the smallest total reported since February, 1915.

The outcome of efforts to secure exemptions for workers in iron and steel and metal-working plants has been disappointing to employers. It is of vastly more consequence to the Government than cost finding that there be adequate working forces at coke ovens, blast furnaces and steel works. One Eastern steel company has been seriously affected by the large drafts made upon its working forces. Only special intervention from Washington, even to the extent of new legislation, seems likely to avert an acute situation.

Short coke supply, in particular, is affecting the entire industry. With pig-iron production in the first half of the year 350,000 tons less than in the first half of 1916, and 550,000 tons less than in the second half, only an unusual use of scrap has made increased steel works output possible.

The supply of steel in the form of billets, sheet bars and slabs is increasing in the open market, and prices are yielding. A sale of 2000 tons of open-hearth billets and one of 1000 tons are reported from Pittsburgh at \$85, or \$5 less than the prompt market of one week ago. Italy is inquiring for 15,000 tons of rerolling billets.

In finished material, the weeks of inactivity have brought no appreciable price changes. Some increase in the supply of plates has been expected from the export embargo, but neither deliveries nor prices appear to be easier.

An easier pig-iron market has resulted from the inaction of the past month, but the condition is not one of positive weakness. With stocks about half those of one year ago, and in view of the inability of furnaces to get sufficient coke, producers are standing on their well-filled order books, and as yet are not conceding that Government revision of coke to a \$3 or \$4 basis will mean any considerable reduction in pig iron. Some concessions are being made by furnaces which have not been long in blast.

All records for iron and steel exports were broken in June, when the total of products reported by weight was 643,763 gross tons, as compared with 527,542 tons in June, 1916. For the fiscal year these shipments reached 6,885,543 tons, against 4,862,154 tons in the previous year. The embargoes came with July, and the June figures may long stand as high point.

Pittsburgh

PITTSBURGH, Aug. 14.

The entire Pittsburgh market report as given in the issue of THE IRON AGE of Aug. 9 could very well be repeated for this week, and it would give accurately the situation in the local pig iron and steel trade as it exists to-day. There is practically no new business in pig iron, semi-finished steel or in finished steel, with the exception of the orders the Government is placing, and these are heavy, especially for sheets. It is hoped that perhaps this week something may come from Washington in regard to the prices the Government is to pay for steel, and just as soon as this comes out, business is likely to start up again. In the meantime, consumers are not buying a pound of material they can possibly

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics
At date, one week, one month, and one year previous

For Early Delivery

Pig Iron, Per Gross Ton:	Aug. 15, 1917.	Aug. 8, 1917.	July 11, 1917.	Aug. 16, 1916.
No. 2 X, Philadelphia...	\$53.00	\$53.00	\$53.00	\$19.50
No. 2 Valley furnace...	53.00	53.00	55.00	18.25
No. 2 Southern, Cin'ti...	49.90	49.90	49.90	16.40
No. 2 Birmingham, Ala.	47.00	47.00	47.00	13.50
No. 2 furnace, Chicago*	55.00	55.00	55.00	18.50
Basic, del'd, eastern Pa.	50.00	50.00	50.00	19.00
Basic, Valley furnace...	52.00	52.00	53.00	18.00
Bessemer, Pittsburgh...	55.95	55.95	57.95	21.95
Malleable Bess. Ch'go*	55.00	55.00	55.00	19.00
Gray forge, Pittsburgh...	46.95	46.95	47.95	18.70
L. S. charcoal, Chicago...	58.00	58.00	58.00	19.75

Sheets, Nails and Wire,	Aug. 15, 1917.	Aug. 8, 1917.	July 11, 1917.	Aug. 16, 1916.
Per Lb. to Large Buyers:	Cents.	Cents.	Cents.	Cents.
Sheets, black, No. 28, P'gh	8.50	8.50	8.50	2.90
Sheets, galv., No. 28, P'gh	10.00	10.00	10.00	4.25
Wire nails, Pittsburgh...	4.00	4.00	4.00	2.60
Cut nails, Pittsburgh...	4.65	4.65	4.65	2.60
Fence wire, base, P'gh...	3.95	3.95	3.95	2.55
Barb wire, galv., P'gh...	4.85	4.85	4.85	3.45

Old Material, Per Gross Ton:	Aug. 15, 1917.	Aug. 8, 1917.	July 11, 1917.	Aug. 16, 1916.
Iron rails, Chicago.....	\$40.50	\$40.50	\$45.00	\$18.50
Iron rails, Philadelphia...	45.00	45.00	52.00	20.00
Carwheels, Chicago.....	30.50	30.50	37.00	11.50
Carwheels, Philadelphia...	35.00	35.00	38.00	15.50
Heavy steel scrap, P'gh...	31.00	33.00	40.00	16.00
Heavy steel scrap, Phila.	31.00	31.00	40.00	14.75
Heavy steel scrap, Ch'go.	29.00	29.00	34.00	15.25
No. 1 cast, Pittsburgh...	30.00	34.00	34.00	15.00
No. 1 cast, Philadelphia...	33.00	34.00	37.50	16.00
No. 1 cast, Ch'go (net ton)	23.00	23.00	29.50	11.50
No. 1 RR. wrot, Phila...	45.00	45.00	55.00	20.00
No. 1 RR. wrot, Ch'go (net)	33.50	33.50	39.00	15.25

Coke, Connellsville, Per Net Ton at Oven:	Aug. 15, 1917.	Aug. 8, 1917.	July 11, 1917.	Aug. 16, 1916.
Furnace, coke, prompt...	\$16.00	\$13.00	\$13.00	\$2.75
Furnace coke, future....	10.00	10.00	10.00	2.50
Foundry coke, prompt...	14.00	14.00	14.00	3.25
Foundry coke, future....	10.00	10.00	10.00	3.50

Metals,	Aug. 15, 1917.	Aug. 8, 1917.	July 11, 1917.	Aug. 16, 1916.
Per Lb. to Large Buyers:	Cents.	Cents.	Cents.	Cents.
Lake copper, New York...	28.00	28.00	30.75	26.75
Electrolytic copper, N. Y.	28.00	28.00	30.75	26.50
Spelter, St. Louis	8.50	8.50	8.87 1/2	8.75
Spelter New York.....	8.75	8.75	9.12 1/2	9.00
Lead, St. Louis.....	10.75	10.75	11.00	5.90
Lead, New York.....	10.87 1/2	10.87 1/2	11.12 1/2	6.00
Tin, New York.....	62 25	63.62 1/2	63.00	39.00
Antimony (Asiatic), N. Y.	15.00	15.00	17.00	10.00
Tin plate, 100-lb. box, P'gh	\$12.00	\$12.00	\$12.00	\$6.00

Rails, Billets, etc., Per Gross Ton:	Aug. 15, 1917.	Aug. 8, 1917.	July 11, 1917.	Aug. 16, 1916.
Bess. rails, heavy, at mill	38.00	38.00	38.00	33.00
O-h rails, heavy, at mill	40.00	40.00	40.00	35.00
Bess. billets, Pittsburgh...	85.00	90.00	100.00	45.00
O-h billets, Pittsburgh...	85.00	90.00	100.00	45.00
O-h sheet bars, P'gh...	85.00	90.00	105.00	47.00
Forging billets base, P'gh	125.00	125.00	125.00	69.00
O-h billets, Phila.....	100.00	100.00	110.00	45.00
Wire rods, Pittsburgh...	90.00	95.00	95.00	55.00

Finished Iron and Steel,	Aug. 15, 1917.	Aug. 8, 1917.	July 11, 1917.	Aug. 16, 1916.
Per Lb. to Large Buyers:	Cents.	Cents.	Cents.	Cents.
Iron bars, Philadelphia...	5.159	4.659	4.659	2.659
Iron bars, Pittsburgh...	4.75	4.75	4.75	2.60
Iron bars, Chicago.....	4.50	4.50	4.50	2.35
Steel bars, Pittsburgh...	4.50	4.50	4.50	2.60
Steel bars, New York...	4.669	4.669	4.669	2.769
Steel plates, Pittsburgh...	9.00	9.00	9.00	3.50
Tank plates, New York...	10.169	10.169	9.169	3.669
Beams, etc., Pittsburgh...	4.50	4.50	4.50	2.50
Beams, etc., New York...	4.669	4.669	4.669	2.669
Shelp, grooved steel, P'gh	4.00	4.00	4.00	2.35
Shelp, sheared steel, P'gh	6.00	6.00	6.00	2.45
Steel hoops, Pittsburgh...	5.75	5.75	5.25	3.00

*The average switching charge for delivery to foundries in the Chicago district is 50c. per ton.

avoid, nor are producers anxious to sell, as they know it would be useless to try to get orders under present conditions. Prices are holding up fairly well, largely for the reason that not enough business in any kind of material is being done to establish prices. The only changes in prices during the week are in coke and scrap, due to scarcity of cars and labor. Coke has gone up very rapidly this week, and sold to-day, Tuesday, at as high as \$15 and \$16 per ton. The scrap market is stagnant, and most prices have gone off \$1 to \$2 per ton, but low phosphorus stock is off \$3 to \$5 per ton. It is certain that business will not start up until the Government comes out with the announcement of the prices for steel it has decided to pay. The labor situation is steadily worse as the draft goes on, and this and the railroad situation are the two serious problems that confront the steel trade to-day.

Pig Iron.—There has not been an actual sale of pig iron of any moment in this market for over two weeks. Consumers will not buy, and producers are not trying to sell, so that the market is stagnant. Reports are that both Bessemer and basic iron could be bought at \$50 Valley or less, but even these offers, if they were actually made, are of absolutely no interest to consumers, who will not buy a pound of pig iron at any price until it is known what prices the Government will fix, not only on pig iron, but on all the steel in various forms it proposes to buy. The last sales of pig iron made in this market were at about \$55 for Bessemer and \$52 for basic at Valley furnace. In this condition there is nothing else to do but repeat these prices in our report, but we wish to emphasize the fact that they are purely nominal, and are used in the entire absence of any sales at lower prices. It is the belief that when buying of pig iron starts again, prices for Bessemer, basic, foundry, and on all other grades will be lower than the nominal prices of to-day. Stocks of pig iron carried by consumers are very light, and several of the larger

users of basic and foundry iron in this district have not bought a ton of iron for next year. When they do come in the market they expect to be able, and probably will be, to buy pig iron at very much lower prices than the present nominal market. We repeat our former prices, which are purely nominal in the absence of any sales, as follows:

Standard Bessemer iron, \$55; basic, \$52; No. 2 foundry, \$53; malleable Bessemer, \$53, and gray forge, \$46, all at Valley furnace, the freight rate for delivery in the Pittsburgh and Cleveland districts from Valley furnaces being 95c. per ton.

Billets and Sheet Bars.—The supply of steel in the forms of billets, sheet bars and slabs in the open market for prompt shipment is steadily getting larger, due partly to the embargo of steel for export shipment and also because of the very large output, which has been greatly increased since the first of the year. Offerings of billets and sheet bars are fairly heavy for prompt delivery and one sale of 2000 tons of soft 4 x 4 in. open hearth billets has been made at \$85, and a sale of 1000 tons of open hearth sheet bars has been made at the same price for prompt shipment, f.o.b. Pittsburgh. This price represents the top of the market to-day on both soft Bessemer and open hearth billets and sheet bars. Prices on forging billets are not as firm as they were, but they have not yet shown any material decline, and there have been no sales on this market for several weeks past.

We now quote soft Bessemer and open-hearth billets at \$85, and soft Bessemer and open-hearth sheet bars at \$85, maker's mill, Pittsburgh or Youngstown. We quote forging billets at nominally \$125 per ton for ordinary sizes and carbons, f.o.b. maker's mill.

Steel Rails.—The new demand for reroll and also for light rails rolled from billets has quieted down a good deal, but prices are holding fairly firm. Consumers are holding off placing orders until they know what the Government is going to do in the matter of fixing steel prices. No new domestic orders are being placed

for standard sections, the recent Government orders for the Allies having preference in rolling, and this will delay, to some extent, deliveries of standard sections to domestic railroads. The rail mills are filled up for many months ahead both on light rails and standard sections, so that the falling off in new business has not seriously affected them. Prices on new light rails and standard sections are given on page 399.

Ferroalloys.—There is a fair amount of new demand for ferromanganese for prompt shipment, and prices are ruling firm. There have been sales of five or six carloads for this year's delivery at about \$400 per gross ton for 80 per cent, f.o.b. Pittsburgh. For delivery in first half of next year, the price of 80 per cent domestic is about \$375 at furnace. We quote 18 to 20 per cent spiegeleisen at \$80 to \$85 per gross ton, at furnace. It is said that some contracts for 50 per cent ferrosilicon for delivery over all of 1918 are being made on the basis of about \$145 for less than 1000 tons and about \$135 on quantities over this amount. Prompt 50 per cent ferrosilicon is bringing \$200 to \$225 against \$75 to \$85 at this time last year. The new demand for Bessemer ferrosilicon and silvery iron is quiet, as consumers are well covered over the remainder of this year.

We quote 9 per cent Bessemer ferrosilicon at \$89, 10 per cent \$90, 11 per cent \$95, 12 per cent \$100, 13 per cent \$105, 14 per cent \$115, 15 per cent \$125, and 16 per cent \$135. We now quote 7 per cent silvery iron at \$84 to \$89, 8 per cent \$85 to \$90, 9 per cent \$86 to \$91, 10 per cent \$87 to \$92, 11 and 12 per cent \$88 to \$93. All f.o.b. maker's furnace, Jackson or New Straitsville, Ohio, and Ashland, Ky., these furnaces having a uniform freight rate of \$2 per gross ton for delivery in the Pittsburgh district.

Structural Material.—The new inquiry is quiet, but local fabricators say they are not bidding actively on new work, as they are filled up for some months ahead, and in addition they desire to conserve some of their capacity for Government orders, which they expect to receive in a short time, and which they will have to get out promptly. The McClintic-Marshall Co. has taken 15,000 tons of structural steel to be furnished to the Keystone Construction Co. for subway work in Philadelphia, and the Blaw-Knox Co. has taken 1000 tons for work for the Curtiss Aero & Motor Corporation. The erection contract is held by the Austin Co. of Cleveland. Prices on structural material are given in detail on page 399.

Plates.—No new orders for steel cars are coming out and there are no inquiries. The Government is expected before long to make heavy demands on the steel car builders for cars of various kinds and the car builders are conserving some of their capacity to meet this demand. The current demand for plates has fallen off very materially and plates for fairly prompt shipment could be bought to-day at lower prices than ruled a month ago. Consumers know that the Government will fix prices on plates at very much lower figures than they have been selling for in the open market, and they are holding off buying, in order to have the benefit of lower prices, which they believe the mills will name to them just as soon as the Government fixes the prices that it will pay. We continue to quote $\frac{1}{4}$ in. and heavier sheared plates for delivery over the remainder of this year at 8c. to 9c. at mill, and small lots for warehouse from 11c. to 12c., Pittsburgh.

Sheets.—The Government has placed heavy orders in the past week for blue annealed, Bessemer and open-hearth black, and for galvanized sheets, which the mills have filled very promptly. In fact, most of the new business being placed in sheets for the past several weeks has come from the Government, as the new domestic demand is very dull. It frequently happens that a Government order for sheets will come by wire or telephone. It is then submitted to the mills in the same way and shipment made within 48 hr. or less, while the regular contract is received some days after the shipment is made. Consumers fully believe the prices on sheets have reached the crest, and before long they will be able to buy at lower prices, and they are holding off placing orders as much as they possibly can. A sale of 350 tons of galvanized sheets on a domestic order for prompt shipment has been made at 10.50c. and one of 360 tons of No. 9 blue annealed at

9c. at maker's mill. Prices on sheets to the domestic trade are given in detail on page 399.

Tin Plate.—The Government has placed orders recently for fairly large quantities of terne plate for lining cartridge cases, and also for charcoal plates for making cooking utensils for the various cantonments and encampments. The tin plate mills have pretty well finished up shipments on contracts for tinplate taken at the \$5.75 and \$6 prices, and are now working largely on contracts taken at the \$7.50 price for Bessemer and \$7.75 price for tin plate to be rolled from open hearth stock. Foreign inquiry is still heavy, but this is usually turned down by the mills, as they need their entire output of both tin and terne plate for domestic trade. The current demand for tin plate is quiet, but small lots of primes for shipment from stock are being sold by the independent mills at prices ranging from \$11 to \$13 per base box. The new prices on terne plate, effective from July 31, are given on page 399.

Iron and Steel Bars.—The new demand for both iron and steel bars has fallen off very materially, the larger consumers being covered over the remainder of this year, while any users that have to buy are holding off placing orders as long as they possibly can in the belief that prices on both iron and steel bars will be lower just as soon as the Government announces the prices it intends to pay for steel. The iron and steel bar mills are well filled up for some months ahead, but jobbers are inclined to carry as light stock as possible in view of the expected decline in prices. Mill prices on iron and steel bars in carloads and larger lots are given on page 399.

Hoops and Bands.—The new demand is dull, as consumers are well covered over the remainder of this year, and mills report specifications active. On small lots for fairly prompt shipments, steel hoops bring 6c. to 7c. and bands 5c. to 5.50c., extras on the latter as per the steel bar card.

Muck Bar.—There is no new buying, but prices are slightly lower, due to the softness in pig iron. We quote best grades of muck bar, made from all pig iron, at \$90 per ton, but these prices might be shaded on a firm offer.

Wire Rods.—The new demand for wire rods is thoroughly active, but has quieted down to some extent, consumers evidently looking for lower prices as soon as the Government fixes the prices it is going to pay for steel. A sale of 200 tons of soft open hearth rods has been made at \$90 and another sale of 150 tons at \$95, maker's mill. We also note a sale of 200 tons of high carbon rods, made from special steel at \$115 maker's mill. Prices on rods are given in detail on page 399.

Wire Products.—The situation in wire and wire nails is the same as noted in this report for several weeks. The new demand is very quiet, and specifications against contracts by domestic customers are dull. The trade has evidently decided that prices on wire and wire nails in effect at present by the independent mills will not be advanced and that there may be a sudden change in the market to a lower basis. Hence they are not buying any nails or wire they can possibly avoid. Jobbers are also inclined to work off their stocks as much as they can in view of the expected lower prices. It is said the bulk of the new business being placed is going to the American Steel & Wire Co. as its prices on nails and wire are still \$16 per ton less than those of the independent mills. As yet the independent mills show no inclination to lower their prices, and just how the present situation on the wire nail and wire trade will work out is a question. Prices quoted on wire and wire nails by the independent mills, but at which they have taken a small amount of new business, are given in detail on page 399.

Shafting.—The Government is taking at present from 30 to 35 per cent of the output of shafting, and may take even a larger quantity before long. These government orders are being shipped promptly and this is delaying deliveries to domestic customers considerably. The new demand for shafting is dull, consumers feeling that prices will not be any higher, and may possibly be lower in the future. Discounts remain at 10 and 5 per cent off list, while a very few small orders are sold at list.

Railroad Spikes and Track Bolts.—It is said the Government order for 100,000 kegs of railroad spikes for the Government railroads to be built in France has been practically placed with the different makers on a prorata basis, but this is not confirmed. The domestic demand for railroad spikes is quiet, but for boat spikes is very active. Most makers of boat spikes are not quoting to the general trade, desiring to conserve their output for the Government and it will be probably needed. Prices on railroad spikes and track bolts are given in detail on page 399.

Cold Rolled Strip Steel.—The Government is still placing fairly heavy orders for both hot and cold rolled steel and these are being shipped out by the mills promptly. The new demand has quieted down a good deal, as consumers are well covered over remainder of this year.

On contracts, mills are quoting 9c. at mill, but on small current orders prices range from 10c. up to 12c. at mill. Terms are 30 days, less 2 per cent off for cash in 10 days when sold in quantities of 300 lb. or more.

Nuts and Bolts.—The new demand has quieted down a good deal, and specifications against contracts are also less active. The consuming trade is looking for lower prices on nuts and bolts which they believe will come as soon as the Government gives out announcement of prices it intends to pay for steel. Discounts adopted April 12, which give prices to the large trade in carloads, advances being charged for small lots, are given on page 399.

Wrought Pipe.—Almost every day the subcommittee on tubular products places small or large Government orders for steel pipe with the mills and these are usually shipped out within 48 to 72 hours after they are received by the mills. It is often difficult for the pipe mills to get the steel, roll the skelp and then make it into pipe, but so far all Government orders have been filled very promptly, and to the entire satisfaction of the Government. On lap weld iron and steel pipe, mills are filled up for the remainder of this year, and some for a longer period. The National Tube Co. is filled up on lap weld steel pipe for a year to nearly 18 months, depending on the size. The new demand for both butt and lap weld iron and steel pipe has fallen off a good deal, as the trade is looking for lower prices on pipe to come very soon after the Government announces its policy as to steel prices. Discounts on steel pipe, as adopted on May 1, and being quoted by most of the independent mills, prices of the National Tube Co. being lower, and also discounts on iron pipe, as adopted by all the mills on July 1, are given on page 399.

Boiler Tubes.—The output of the mills rolling iron and steel boiler tubes is sold up for a year or more, but all the mills are taking care of very heavy Government orders for iron and steel tubes, and seamless steel tubing, these orders being given preference and shipped out as fast as the mills can make the product. One leading mill has large orders on its books for steel boiler tubes, to be used on vessels to be built by the Government in 1918, and in some cases running into 1919. One leading interest is furnishing probably 50 per cent of its entire output of steel boiler tubes and seamless steel tubing for Government purposes on direct and indirect orders. Nominal discounts, which do not represent actual prices, are given on page 399.

Old Material.—The leading railroads three or four days ago declared a general embargo on shipments of scrap, and now no shipments can be made on any of the roads leading into this city and into other scrap consuming centers without securing a permit to load the cars. In addition the railroads are furnishing practically no gondola cars, and instead will give shippers only box cars. It is the practice to unload scrap in steel gondolas with magnets, while box cars have to be unloaded by hand labor with wheelbarrows, and this adds very materially to what the scrap costs the buyer. For about a month there has been an embargo on scrap routed to the Pittsburgh Steel Co., Monessen, Pa., but this has been lifted. The local scrap market is almost stagnant, as far as new sales go, and in the meantime prices seem to be steadily seeking a lower level. None of the large consumers is buying any scrap, nor is there a great deal of material coming

on the market to find sale. The larger dealers who can hold their scrap are inclined to do so, believing that the market will be higher later on. It is pointed out that the scarcity of coke is keeping quite a large number of blast furnaces banked, and this is materially cutting down the output of pig iron. In order to make up this shortage in pig iron, large steel companies are drawing heavily on their scrap piles, and it is known that stocks of scrap held by three or four of the larger users are getting low. Should a large consumer come in the market for 30,000 to 40,000 tons of scrap—and this may happen at any time—it would very quickly have the effect of putting up prices, and this is what some of the scrap dealers are counting on as going to happen. This can be considered as a bull factor, but, on the other hand, the railroads sell their scrap every month regardless of prices ruling, and lately a good deal of scrap has been coming from the railroads, thus helping to depress prices in the face of the dull demand from consumers. About the only scrap moving is some small lots of heavy steel scrap, also borings, and a few small lots of low phosphorus melting stock, but prices on the latter have declined very materially. The whole situation is that not enough scrap is being sold to consumers to establish market prices, which are largely nominal.

Dealers quote for delivery in Pittsburgh and other consuming points that take Pittsburgh freight rates, per gross ton, as follows:

Heavy steel melting scrap, Steubenville, Follansbee, Brackenridge, Monessen, Midland and Pittsburgh, delivered	\$31.00 to \$32.00
No. 1 foundry cast	30.00 to 31.00
Re-rolling rails, Newark and Cambridge, Ohio, Cumberland, Md., and Franklin, Pa.	38.00 to 40.00
Hydraulic compressed sheet scrap	25.00 to 26.00
Bundled sheet scrap, sides and ends, f.o.b. consumers mill, Pittsburgh district	23.00 to 24.00
Bundled sheet stamping scrap	21.00 to 22.00
No. 1 railroad malleable stock	26.00 to 27.00
Railroad grate bars	18.00 to 19.00
Low phosphorus melting stock	41.00 to 42.00
Iron car axles	45.00 to 46.00
Steel car axles	45.00 to 46.00
Locomotive axles, steel	52.00 to 53.00
No. 1 busheling scrap	24.00 to 25.00
Machine-shop turnings	18.00 to 19.00
Cast iron wheels	31.00 to 32.00
Rolled steel wheels	36.00 to 37.00
*Sheet bar crop ends	41.00 to 42.00
Cast iron borings	19.00 to 20.00
No. 1 railroad wrought scrap	32.00 to 33.00
Heavy steel axle turnings	23.00 to 24.00
Heavy breakable cast scrap	24.00 to 25.00

*Shipping point.

Coke.—On Monday and Tuesday of this week and also on Wednesday forenoon, there was an acute shortage in the supply of cars and labor in the coke regions and in addition several of the large steel companies, notably the Jones & Laughlin Steel Co., Republic Iron & Steel Co., Youngstown Sheet & Tube Co. and others were heavy buyers of prompt furnace coke, with the result that prices have advanced rapidly, and on Tuesday and also Wednesday morning best grades of blast furnace coke for prompt shipment to Valley furnaces sold at \$15 and \$16 per net ton at oven. There is a great scarcity in the supply of labor in the coke regions and this is likely to get worse as the army draft goes on and there is also a shortage in the supply of miners, there not being enough miners to mine sufficient coal to keep the ovens active. We now quote best grades of blast furnace coke for spot shipment to Valley furnaces at \$16 per net ton at oven and coke for Eastern shipment over the Pennsylvania Railroad is higher. Lately the Government through the Federal Trade Commission has been making investigation of coke making by the larger operators and it is expected that the Government may later fix selling prices on both coal and coke. Nothing is being done in coke contracts. The output of coke for the week ended Aug. 4 was over 32,000 tons less than in the previous week, due to shortage in labor, mostly miners. Nothing is being done in contracts. Best grades of 72-hour foundry coke are selling at about \$14 per net ton at oven for prompt shipment. The Connellsville *Courier* gives the output of coke in the Upper and Lower Connellsville regions for the week ended Aug. 4 as 335,073 tons, a decrease over the previous week of 32,282 tons.

Chicago

CHICAGO, Aug. 13.

Since the announcement of the Government's regulations which, after Aug. 15, will impose an almost complete embargo on foreign shipments of plates, shapes, billets, pig iron, and scrap, there has been great activity in obtaining licenses authorizing the export of these products. Most of the business of this character in the West has been with Japanese purchasers. Some modification of the stringent ruling is regarded as likely after the arrival in Washington of the Japanese mission which has landed at a Pacific port, especially if Japan consents to aiding the Allies by sending some of her vessels to the Atlantic. It is known that Japan is feverishly building a merchant marine with which she can cope with the flags of the world if permitted to pursue her present course of taking plates that may be needed to prosecute the war through the building of vessels in the United States. These plates, of course, were purchased before the present exigency arose. The United States Government has ordered about 6000 freight cars of various kinds for the railroad it will build in France, distributing the orders among several makers. It also has bought, altogether, 75,000 kegs of spikes for its French operations. Meanwhile domestic business is almost at a standstill except in various specialties. Local authorities believe that some relief in structural shapes is in sight, and one mill will have some light rails to offer next month. Lettings of fabricated steel work are more numerous. Pig iron is inactive, but prices are fully maintained, as they are in all other directions, except scrap. Old material, however, is lower in only one or two items, and it is believed the downward trend of the market has been checked.

Ferroalloys.—No change in prices is reported. Eighty per cent ferromanganese is around \$400, delivered, for prompt; \$375 for the latter part of this year, and \$350 for first half of 1918. Some fear is expressed over the possibility of a shortage, but this feeling is by no means general. Bessemer ferrosilicon is around \$100, Jackson County, for 10 per cent, and 50 per cent ferrosilicon ranges from \$135 to \$145, according to delivery and quantity.

Plates.—It is felt that the greatest demand for plates is yet to come, inasmuch as the Government will soon be calling for the material to meet its shipbuilding program. Since the announcement of the regulations which impose an embargo on the shipment of plates after Aug. 15, there has been a rush to obtain licenses and to get material in transit prior to that date. Meanwhile new domestic business in plates has been held in abeyance. It is felt that the embargo will surely operate to the advantage of home consumers by making plates easier to obtain. Meanwhile, the quotation for tank plates ranges from 10c. to 11c., delivery in 60 to 90 days. An Eastern mill will supply rectangular plates only when the order includes flanged heads.

For Chicago delivery out of stocks jobbers quote 10c.

Structural Material.—Local authorities are of the opinion that relief for the market in structural shapes is near, a view probably based on the embargo which becomes effective Aug. 15. About the only producing seller in this market is an Eastern mill which continues to quote 6c., Pittsburgh, or 6.189c., Chicago, for material out of stock. A local mill will supply some of the material needed for about 6000 cars which the United States Government has purchased for its railroad operations in France. Included in the orders are refrigerator, box, tank, flat and gondola cars which will be supplied by the American Car & Foundry Co., Standard Steel Car Co., Pullman Co., Haskell & Barker Car Co., and the Fressed Steel Car Co. They will require about 50,000 tons of steel. Jobbers continue to quote 5c. for material out of Chicago warehouse. Structural lettings are reported as follows:

Temple Malleable Iron & Steel Co., foundry buildings, Temple, Pa., 394 tons to unknown.
Commonwealth-Edison Co., addition to Fisk Street Station, Chicago, 240 tons, to Hansell-Elcock Co.
Minneapolis, St. Paul & Sault Ste. Marie R. R. Co., deck

plate girder spans, Spokane, Wash., 125 tons, to Minneapolis Steel & Machinery Co.

Missouri Pacific R. R. Co., one 156-ft. riveted truss span at Sweet Springs, Mo., 180 tons, to American Bridge Co.
Pacific Telephone & Telegraph Co., office building, Oakland, Cal., 708 tons, to California Steel Co.

Pig Iron.—There is little or no change to record in this market either as to prices or activity. Occasional resale lots are making their appearance, but otherwise iron is almost inactive. Deliveries are going forward at a fair rate, largely as a result of the hard work of the sellers. But little concern has been felt hereabouts over the restrictions placed on exports by the Government, inasmuch as most of the sales for foreign shipment were made f.o.b. furnace, and the delivery troubles are up to the purchasers. Some difficulty has been experienced in getting a lot destined for Chile to the seaboard, but it is believed that the New York buyers will manage to get a license and make the shipment. Furnaces in the South appear to be suffering more than others from the shortage of coke, and reports are current of this or that furnace having to bank, most of them small producers. Without exception, prices are unchanged. Northern producers quote \$55, furnace, for basic, malleable Bessemer or No. 2 Foundry, any delivery. For this year, the sellers of Southern ask \$50, Birmingham, or \$54, Chicago, for No. 2, and \$45 to \$48 for the first half. The following quotations are for iron delivered at consumers' yards, except those for Northern foundry, malleable Bessemer and basic irons, which are f.o.b. furnace, and do not include a switching charge averaging 50c. per ton:

Lake Superior charcoal, Nos. 1 to 4.....	\$58.00
Lake Superior charcoal, Nos. 5 and 6,	
Scotch and No. 1 soft or special.....	60.50
Northern coke foundry, No. 1.....	55.50
Northern coke foundry, No. 2.....	55.00
Northern coke foundry, No. 3.....	54.50
Northern high-phosphorus foundry.....	55.00
Southern coke No. 1 f'dry and 1 soft.....	55.00
Southern coke No. 2 f'dry and 2 soft.....	54.00
Malleable Bessemer.....	55.00
Basic.....	55.00
Low-phosphorus.....	\$90.00 to 93.00
Silvery, 8 per cent.....	82.75

Bars.—Agricultural implement makers are naturally keeping a close eye on the market, but it cannot be learned that they have placed any orders of late, and it is probable that they will refrain from buying until they have some assurance that prices will remain fairly stable over a specified period of time. A mill which ordinarily supplies a part of their requirements has received no 1918 business from them. Bars are not included in the export restrictions, and a few hundred tons were recently exported by a local mill. Mild steel bars are quoted at 4.689c., Chicago. An Eastern mill which has been quoting this price can sell only limited sizes, mostly small. Bar iron is fairly active at 4.50c. to 5c., Chicago. Rail carbon bars are quoted at 4.50c., Chicago, but the demand is lighter because of the lack of new construction. Jobbers have made no changes in their quotations.

We quote prices for Chicago delivery as follows: Soft steel bars, 4.50c.; bar iron, 4.50c. to 5c.; reinforcing bars, 4.50c., base, with 5c. extra for twisting in sizes $\frac{1}{2}$ in. and over and usual card extras for smaller sizes; shafting list plus 5 per cent to plus 10 per cent.

Wire Products.—The leading interest has not deviated from its policy of limiting deliveries on specifications to the actual needs of its customers, and in not taking new business except in urgent cases. It quotes on the basis of 3.20c. for wire nails. Independent manufacturers ask 4c. and upward. We quote on the basis of 4c., Pittsburgh, for nails, per 100 lb., to jobbers, as follows:

Plain fence wire, Nos. 6 to 9, base, \$4.189; wire nails, \$4.189; painted barb wire, \$4.339; galvanized barb wire, \$5.039; polished staples, \$4.339; galvanized staples, \$5.039; all Chicago, carload lots.

Sheets.—The local office of a Middle Western maker is not taking any business in black and blue annealed without submitting the inquiry to the mill. The quotation for No. 28 black sheets is about 9.189c., Chicago, with box annealed somewhat lower, 8.939c., Chicago, being probably obtainable. Galvanized, No. 28, range from 10.30c. to 11c., Pittsburgh, one maker quoting 10.45c., Pittsburgh, or 10.639c., Chicago. Jobbers have not changed their quotations.

We quote for Chicago delivery out of stock, regardless of quantity, as follows: No. 10 blue annealed, 10c.; No. 28 black, 10c., and No. 28 galvanized, 11.50c.

Rails and Track Supplies.—Altogether, the Government has purchased 75,000 kegs of spikes for the railroad it will build in France. No domestic business is reported. An Eastern mill expects to be in a position to offer light rails in September. Quotations of the leading interest, with the exception of tie plates, follow:

Standard railroad spikes, 4.25c. base; small spikes, 4.50c. base; track bolts with square nuts, 5.25c., all in carloads. Chicago: tie plates, \$70 to \$90 f.o.b. mill, net ton; standard section Bessemer rails, Chicago, \$38, base; open hearth, \$40; light rails, 25 to 45 lb., \$65; 16 to 20 lb., \$66; 12 lb., \$67; 8 lb., \$68; angle bars, 3.25c., base.

Bolts and Nuts.—New business is quiet. For prices and freight rates see finished iron and steel prices, f.o.b. Pittsburgh, page 399.

Store prices are as follows: Structural rivets, 5.50c.; boiler rivets, 5.60c.; machine bolts up to $\frac{3}{4}$ x 4 in., 40-10; larger sizes, 35-5; carriage bolts up to $\frac{3}{4}$ x 6 in., 40-2 $\frac{1}{2}$; larger sizes, 30-5; hot pressed nuts, square, \$3, and hexagon \$3 off per 100 lb.; lag screws, 50 per cent off.

Old Material.—Consumers are doing but little buying but there is more inquiry, and the market has a better aspect. If the inquiry attains any considerable volume, prices are bound to advance. A serious phase of the present situation is the difficulty which dealers are encountering in getting material shipped against orders they have placed. It is complained that the collectors of scrap use the dealer about as they see fit. There have been a large number of cases where these sellers have sold material, but have chosen not to deliver in the face of an opportunity to get a higher price elsewhere, sometimes making it necessary for the dealer to buy elsewhere to cover his commitments and lose money in the bargain. Heavy section rails are in good demand at full prices. The railroad offerings are not large. The C., St. P., M. & O. has issued a small list and the C. & A. is offering 250 tons of rerollers. We quote for delivery at buyers' works, Chicago and vicinity, all freight and transfer charges paid, as follows:

Per Gross Ton

Old iron rails	\$40.50 to \$41.50
Relaying rails	50.00 to 55.00
Old carwheels	30.50 to 31.50
Old steel rails, rerolling	38.00 to 39.00
Old steel rails, less than 3 ft.	38.00 to 39.00
Heavy melting steel scrap	29.00 to 30.00
Frogs, switches and guards, cut apart	29.00 to 30.00
Shoveling steel	26.00 to 27.00
Steel axle turnings	21.00 to 22.00

Per Net Ton

Iron angles and splice bars	\$38.00 to \$39.00
Iron arch bars and transoms	41.00 to 42.00
Steel angle bars	30.00 to 31.00
Iron car axles	40.00 to 41.00
Steel car axles	40.00 to 41.00
No. 1 railroad wrought	33.50 to 34.50
No. 2 railroad wrought	30.50 to 31.00
Cut forge	30.00 to 30.50
Pipes and flues	21.00 to 22.00
No. 1 busheling	24.50 to 25.50
No. 2 busheling	17.00 to 18.00
Steel knuckles and couplers	41.00 to 42.00
Steel springs	42.50 to 43.00
No. 1 boilers, cut to sheets and rings	20.50 to 21.00
Boiler punchings	31.00 to 32.00
Locomotive tires, smooth	40.00 to 41.00
Machine-shop turnings	16.50 to 17.50
Cast borings	16.50 to 17.50
No. 1 cast scrap	23.00 to 24.00
Stove plate and light cast scrap	17.50 to 18.00
Grate bars	17.50 to 18.50
Brake shoes	17.50 to 18.50
Railroad malleable	30.50 to 31.50
Agricultural malleable	23.75 to 24.75
Country mixed scrap	16.00 to 16.50

Cast-Iron Pipe.—The 400-ton lot required by Whitefish Bay, Wis., went to the American Cast Iron Pipe Co. At the Akron, Ohio, letting, Aug. 6, 1340 tons went to the Hardware & Supply Co., bidding for the National Cast Iron Pipe Co., and 1240 tons to the United States Cast Iron Pipe & Foundry Co. The Government, among other orders placed in the East, gave one to the United States Cast Iron Pipe & Foundry Co. for 600 tons for delivery at Rockford, Ill. Prices are unchanged.

Quotations per net ton, Chicago, are as follows: Water pipe, 4 in., \$68.50; 6 in. and larger, \$65.50, with \$1 extra for class A water pipe and gas pipe.

Philadelphia

PHILADELPHIA, Aug. 13.

Pressure for delivery forms the outstanding feature of the iron and steel markets here. New business is almost at a standstill, though export inquiry is still abundant in some lines such as plates, and transactions in iron are confined to the foundry grades, with very small tonnages involved. Government specifications in all lines continue to reach mills in this territory, but no total allotments have been filled up to this time. Pig iron houses are finding work to occupy themselves during the dull season, as the Federal Trade Commission has sent out an exhaustive inquiry for full details of the elements entering into the cost of making iron.

Pig Iron.—Transactions in eastern Pennsylvania iron are confined to filling-in purchases, for the most part, and the tonnages involved are slight. Good observers feel that the market is slightly softer in the absence of inquiries for any considerable amounts. With furnaces sold up anywhere from six to 12 months, and with many large consumers covered for corresponding periods more or less completely, the present situation was, perhaps, to have been expected. Prices are more or less nominal, and this applies to the Virginia irons as well as to the steel-making grades, in which no transactions have been recorded during the week. There was an inquiry in this market for about 5000 tons of basic to be supplied to a north Jersey concern, but it is understood that the inquiry was conditional and that the order has not been placed. In fact, some users of steel-making irons show a disposition to hold back for the present, awaiting developments in Washington and elsewhere. The Government inquiry as to costs to-day brought forth the comment that furnaces at this time are making shipments of iron in many instances at one-third of the present market prices. Reports of a great quantity of re-sale iron as a result of the embargo have not been verified here and have had no effect on prices. It is believed that any iron originally destined for Holland or Scandinavia would be taken gladly by Italy, and considerable quantities of pig have been forwarded on Japanese account under the export licenses which expire August 15. Standard brands range about as follows, for prompt shipment and delivery in buyers' yards:

Eastern Penn No. 2 X foundry	\$53.00 to \$55.00
Eastern Penna No. 2 plain	52.50 to 54.50
Virginia No. 2 X foundry	54.25 to 55.25
Virginia No. 2 plain	53.75 to 54.75
Basic	50.00 to 52.00
Standard low phosphorus	50.00

Ferroalloys.—Both ferromanganese and spiegeleisen have shown considerable activity during the past week. Transactions in ferromanganese involving more than 2000 tons have been reported and the price for prompt has been firm at \$400. Last quarter delivery can be had for \$375, with \$350 still the quotation on first quarter, 1918. Inquiry for spiegeleisen during the week aggregated about 10,000 tons, and it is understood most of this amount has been placed. As a result, the price, which last week ranged from \$78 to \$80, furnace, is now firm at the latter figure for substantial lots.

Coke.—Car conditions have had an unfavorable effect on the coke market, and prices of \$15 to \$15.25 were paid last week, with more than \$16 recorded in one sizable sale. Quotations on spot fuel to-day were \$14 to \$15.

Billets.—Italy is in the market for 15,000 tons of rerolling billets and bids have been asked here. Billets available for general sale are rather a rarity with mills in this territory and there are but few transactions. While it is reported that rerolling billets have been offered here, in small lots, at \$100 through brokers, the last actual sale price recorded here was \$110, announced to-day by a maker who had a fairly large lot made available through an odd combination of circumstances. Billets suitable for use in seamless tube plants are quoted at \$115, and forging billets for 1918 delivery have been sold here for \$125.

Sheets.—Conditions show little change with sheet makers in this district. Government work has the call and civilian orders, even when taken, are shoved to the rear. Quotations on the scattering work taken on show no change, being based on 8½c. for No. 10 blue annealed, and 10¼c. to 11c. for galvanized.

Iron and Steel Bars.—Makers of bar iron are well sold up, and there has been continuous inquiry, largely as a result of the extensive shipbuilding program. Some inquiries in this market call for amounts up to 1000 tons, and smaller requests are numerous. Mills are maintaining 5.159c. Philadelphia as the minimum for carload lots, shipment at mill convenience. Several thousand tons of soft steel bars are wanted for export to Japan, and one large maker reports very satisfactory specifications on bars under contract at 4½c., base, Pittsburgh.

Structural Material.—Settlement of the Broad Street subway question, involving about 25,000 tons, has been deferred, though something definite may be expected after settlement of the new lease between the Rapid Transit Co. and the city, which goes to Councils to-morrow. Meanwhile, the mayor has not signed the awards of contracts. While no inquiries of moment have been received here during the week, it is understood that fabricating interests are endeavoring to cover on tonnages for the last quarter, but with little success. Mills are not eager for work, and some of them, between orders for their own customers and Government allotments, will take on nothing for the remainder of this year. Shapes from stock maintain prices anywhere from 5¼ to 6c., base, Pittsburgh.

Old Material.—Establishment of the embargo on scrap shipments by the Pennsylvania Railroad on recommendation of the defense authorities in Washington has had the effect of upsetting the market for old materials and restricting business. Under this ruling, the railroad will accept no scrap for shipment unless consignees give notice of acceptance and undertake to unload within a reasonable time. It is expected that the new order will eliminate speculative shipments, whereby the shipper undertook to find a buyer while his cars were enroute, with the frequent effect of tying up cars and congesting junction points. Another effect has been to leave the shipper in a quandary should the mill find objection to the shipment as not up to its specifications, for he cannot re-ship without finding another buyer. It is expected that these difficulties will be overcome and firms handling old material incline to the view that their real interests will not suffer, though they say one result is likely to be a shortage of materials at the mills when real demand comes. The embargo and other factors have combined to make the situation hard to analyze; and the following quotations, per gross ton delivered in eastern Pennsylvania, are largely nominal in the absence of trading:

No. 1 heavy melting steel.....	\$31.00 to \$32.00
Steel rails, rerolling.....	43.00 to 45.00
Low phosphorus heavy melting.....	45.00 to 50.00
Old iron rails.....	45.00 to 47.50
Old car wheels.....	35.00 to 38.00
No. 1 railroad wrought.....	45.00 to 50.00
No. 1 forge fire.....	22.00 to 23.00
Bundled sheets.....	22.00 to 23.00
No. 2 bushing.....	16.00 to 17.00
Machine shop turnings (for blast furnace use).....	19.00 to 20.00
Machine shop turnings (for rolling mill use).....	20.00 to 21.00
Cast borings (for blast furnace use).....	19.00 to 20.00
Cast borings (clean).....	22.00 to 23.00
No. 1 cast.....	33.00 to 34.00
Grate bars.....	21.00 to 22.00
Stove plate.....	22.00 to 23.00
Railroad malleable.....	32.50 to 35.00
Wrought iron and soft steel pipe.....	31.00 to 33.00

Plates.—Between 10,000 and 20,000 tons for export were offered to plate makers since last Monday, but it is understood that save for a small percentage for Japan the inquiries were rejected. Mills are running at their utmost capacity, but it is estimated that as high as 85 or 90 per cent of the output is intended directly or indirectly for Government use. Rolling programs are arranged in accordance with instructions from Washington, and that is why private buyers are informed they cannot get delivery much under a year,

and then only if Government requirements do not interfere. The letting of a contract for 750 additional locomotives, in addition to those already ordered for Russia and France, adds to plate requirements, for it is figured that the needs of this Government and the Allies will keep locomotive works crowded for a year. Quotations remain unchanged at 10.159c. Philadelphia for tank and 12.50c., mill, for boat steel, as the minimums.

Cincinnati

CINCINNATI, Aug. 14 (By wire).

Some improvement is noted in the inquiry for foundry iron to be shipped this year, although with very few exceptions the amounts wanted are rarely over 200 tons. An Indiana melter is expected to close soon for 500 tons of Southern No. 2 for September-December shipment. A local firm that has canvassed the situation thoroughly is authority for the statement that buying for this year will be continued for small amounts only, but predicts that when interest revives again in first half business, the activity will be more marked than at any time during the present year. Just now consumers are absolutely indifferent for that delivery. Southern iron for this year's shipment is sold all the way from \$48 to \$50, Birmingham, but most of the spot iron is bringing the higher price. First half quotations are somewhat in the dark, as it is rumored that firms who were willing to take business at \$45, Birmingham, several weeks ago have withdrawn prices and generally are quoting more whenever any single inquiry comes to life. Northern is stationary at \$55, Iron-ton, for either this year or the first half of next year. Very little, if any, foundry iron can be obtained in the Hanging Rock district for nearby shipment, as stocks are practically cleared out. The Ohio silvery irons are inactive, and no change in previous quotations is noted. A little Bessemer ferrosilicon was recently sold, but the price was not divulged. Based on freight rates of \$2.90 from Birmingham and \$1.26 from Iron-ton, we quote, f.o.b. Cincinnati, for 1917 shipment, as follows:

Southern coke, No. 1 f'dry and 1 soft.....	\$51.40 to \$52.40
Southern coke, No. 2 f'dry and 2 soft.....	49.90 to 50.90
Southern coke, No. 3 foundry.....	49.40 to 50.40
Southern coke, No. 4 foundry.....	48.90 to 49.90
Southern gray forge.....	48.90 to 49.90
Ohio silvery, 8 per cent silicon.....	87.26 to 91.26
Southern Ohio coke, No. 1.....	56.26 to 57.26
Southern Ohio coke, No. 2.....	56.26 to 57.26
Southern Ohio coke, No. 3.....	55.26 to 56.26
Southern Ohio malleable Bessemer.....	56.26 to 57.26
Basic, Northern.....	56.26 to 57.26
Lake Superior charcoal.....	56.75 to 57.75
Southern carwheel foundry.....	48.90 to 49.90

(By Mail.)

Finished Material.—The jobbers are having a hard time in obtaining cars in which to make outside shipments. They are also suffering from the same cause on mill shipments that are held up frequently beyond the specified time. The demand for structural shapes is considered somewhat phenomenal at the present time, and a large part of this business is from local customers. Plates ¼-in. and heavier have been advanced to 10c. base, and No. 10 blue annealed sheets to 10c. All other store prices remain unchanged as follows: Iron and steel bars, 5c.; twisted steel bars, 5.05c.; structural shapes, 5.25c.; cold rolled shafting, 15 per cent plus list; machine bolts ¾x4-in. and smaller, 40 per cent off list, larger and longer, 30 per cent. Hoops and bands are not quoted for nearby shipments, and only a selected tonnage is being taken on, either by mills or the jobbers for future delivery. The nominal quotation on No. 28 black sheets is now around 9.65c., Cincinnati or Newport, Ky., and No. 28 galvanized at 11.65c.

Coke.—The relief afforded by more moderate weather has enabled producers in all districts to increase the output, but this is offset by the car shortage, which is growing worse. Spot foundry coke loaded on cars would bring almost any price and furnace coke is equally as high where wanted badly, so that no definite prices can be named. Some 72-hr. coke is being disposed of in

small lots around \$16 per net ton at oven in the Connelville, Pocahontas and New River fields. In a few cases spot foundry coke has been bought as low as \$14.50, but the material was not loaded on cars, and there was some question as to its being moved forward promptly. Contract foundry coke is quoted all the way from \$11 to \$13 per net ton at oven and this wide range of prices is prevalent in all of the three fields named. Contract furnace coke is worth around \$9 to \$10 per ton.

Old Material.—All quotations are exceedingly weak, but no radical changes have been made within the past few days. Without exception, all dealers are complaining as to the car shortage and as to their inability to supply outside customers, especially those in the Pittsburgh district. Incoming shipments have, of course, been curtailed almost in the same proportion, but nevertheless offerings are somewhat heavy and exceed present demands. The following are dealers' prices f. o. b. at yards, southern Ohio and Cincinnati:

Per Gross Ton	
Bundled sheet scrap	\$19.50 to \$20.00
Old iron rails	33.00 to 33.50
Relaying rails, 50 lb. and up	45.00 to 45.50
Rerolling steel rails	36.00 to 36.50
Heavy melting steel scrap	32.00 to 32.50
Steel rails for melting	32.00 to 32.50
Old carwheels	29.00 to 29.50

Per Net Ton	
No. 1 railroad wrought	\$31.50 to \$32.00
Cast borings	12.50 to 13.00
Steel turnings	12.50 to 13.00
Railroad cast	23.00 to 23.50
No. 1 machinery cast	24.00 to 24.50
Burnt scrap	14.50 to 15.00
Iron axles	43.00 to 43.50
Locomotive tires (smooth inside)	36.00 to 36.50
Pipes and flues	17.50 to 18.00
Malleable cast	24.50 to 25.00
Railroad tank and sheet	15.50 to 16.00

Birmingham

BIRMINGHAM, Aug. 14 (By wire).

There has been no break in the deadlock in the southern iron market. There is little inquiry and few sales, with no change in quotations. Fifty dollars for this year, \$48 for next, is the rule for furnace iron.

BIRMINGHAM, ALA., Aug. 11—(By Mail).

Pig Iron.—Another listless week in the Birmingham iron market marked no change in prices. Delivery is the principal concern. One maker is due to deliver 55,000 tons this month and is delivering at the rate of 25,000. Stocks of all kinds are reported to have been reduced to less than a month's make. A large maker reports a small run of sales at \$50 and over for 1917 and \$48 and over for 1918. A lot of several hundred tons of silvery for prompt shipment brought \$52 and one of over 3 per cent silicon brought \$53. Brokers report spot sales at \$50 and over with an occasional lot going slightly under \$50. Inquiry from several foreign countries is active, but the domestic inquiry is nil. Consumers press for deliveries. Furnaces worked badly the latter portion of July on account of moisture and output fell below the usual. The small supply of charcoal is selling at \$55 and \$57, the latter being the more usual price recently. Very little is heard of iron left over at ports, what was available appearing to have been taken care of. Southern foundries, especially those in the Birmingham district, are unusually busy and the home metal consumption is increasing. We quote per gross ton f.o.b. Birmingham district furnaces for prompt delivery as follows:

No. 1 foundry and soft	\$50.50 to \$51.50
No. 2 foundry and soft	50.00 to 51.00
No. 3 foundry	49.50 to 50.50
No. 4 foundry	49.25 to 50.25
Gray forge	49.00 to 50.00
Basic	50.00 to 51.00
Charcoal	55.00 to 56.00

Steel Bars.—Steel bars f.o.b. Birmingham in carload lots, 4.75c. to 5.00c.; iron bars, 4.40c. to 4.60c.

Cast Iron Pipe.—The Government has let additional contracts for cantonment purposes and flange pipe for the oil fields has also been ordered in quantities. A Western municipality order for 1000 tons was booked;

otherwise this trade is very dull. We quote per net ton f.o.b. makers' yards as follows: 4 in., \$63; 6 in. and upward, \$60 with \$1 added for gas pipe and special lengths.

Coal and Coke.—Coal operators are principally concerned in the ultimatum of the reorganized union miners to walk out Aug. 20, unless recognized. A few small concerns have recognized the union; the larger ones will not. Prices remain unchanged, but output has suffered owing to agitation. Coke reacted after a streak of sympathy with that of other districts and the lowest spot coke is held at \$14. Efforts to secure spot coke at \$16 were unsuccessful. A Chattanooga order for 1000 tons went begging owing to inability to fill it.

Old Material.—The scrap market is reported as demoralized, especially on account of embargoes which have restricted sales territory to the advantage of the consumers in places where delivery is obtainable. Prices have not changed, but quotations are subject to special treatment in actual transactions. We quote per gross ton f.o.b. dealers' yards as follows:

Old steel axles	\$50.00 to \$51.00
Old steel rails	25.00 to 26.00
No. 1 wrought	28.00 to 29.00
No. 1 heavy melting steel	18.00 to 19.00
No. 1 machinery cast	22.50 to 23.00
Carwheels	25.00 to 25.50
Tram carwheels	23.00 to 23.50
Stove plate and light	16.00 to 17.00
Turnings	11.00 to 12.00

St. Louis

ST. LOUIS, Aug. 13.

Pig Iron.—Transactions in this market in pig iron are at about the lowest possible ebb, with carload lots seemingly the maximum, save for special offerings of iron which is off the standard analyses. A number of sales of this type are going on from day to day. An offering of some reclaimed iron by an insurance company which had salvaged it from a river accident, although it was practically at buyer's offer in price, attracted no attention although 400 tons was made available at considerably below the market. A considerable number of ferromanganese sales were made during the week, mostly in carload lots at \$375 for future delivery and \$400 for spot. An inquiry is also pending from an out of town concern for 300 tons of foundry iron, but a delivery problem is involved which interferes with closing, aside from the price. The figures here stand at about \$48 Birmingham for No. 2 Southern for 1918, with Chicago No. 2 X at \$55 and Iron-ton at the same figure. Lake Superior charcoal iron is held at \$60.

Coke.—The market for coke has stiffened somewhat during the week and prompt shipment foundry grades are being held at \$13.50 to \$14 for best selected 72-hr. coke, while future contracts are being accepted at about \$12.50, though not much is being handled at that price. Furnace coke is only slightly lower than foundry coke, but is not in demand, while by-product coke is not actively in the market, being well sold up. One inquiry for foundry grade coke for future delivery is from 1500 to 2000 tons for 1918 delivery.

Finished Iron and Steel.—In finished products the market is at a standstill save for the activities of those who are insisting with all their energy upon the delivery of material already under contract. Movement out of warehouse is very active. For stock out of warehouse, we quote as follows: Soft steel bars, 4.55c.; iron bars, 4.50c.; structural material, 5.05c.; tank plates, 8.05c.; No. 10 blue annealed sheets, 10.05c.; No. 28 black sheets, cold rolled, one pass, 10.35c.; No. 28 galvanized sheets, black sheet gage, 11.75c.

Old Material.—The scrap dealers report a slightly stronger feeling in the market as a result of shipments East and an increasing tendency to buy for that purpose, but the local demand remains without change and consumers are apparently content to await developments and to operate their plants on what they have in their yards and their contracts remaining to be filled. An incident of the situation is the piling up of car service charges because of the condition of the railroads and the rigid enforcement of rules. Lists out are very few

and railroads seem to be holding their material for two reasons, the uncertainty of the market and the difficulty in getting cars. The lists out at present include only 250 tons from the Chicago & Alton and 150 tons from the Kansas City, Mexico & Orient. We quote dealers' prices f.o.b. St. Louis industrial district, at customers' works, as follows:

Per Gross Ton	
Old iron rails	\$38.00 to \$38.50
Old steel rails, re-rolling	38.50 to 39.00
Old steel rails, less than 3 ft.	38.00 to 39.00
Relaying rails, standard section, sub- ject to inspection	50.00 to 55.00
Old carwheels	30.50 to 31.00
No. 1 railroad heavy melting steel scrap	29.00 to 30.00
Heavy shoveling steel	27.00 to 27.50
Ordinary shoveling steel	26.00 to 26.50
Frogs, switches and guards, cut apart ..	29.00 to 30.00
Ordinary bundled sheet scrap	18.50 to 19.00
Heavy axle and tire turnings	21.00 to 22.00
Per Net Ton	
Iron angle bars	\$35.00 to \$35.50
Steel angle bars	30.00 to 30.50
Iron car axles	40.00 to 41.00
Steel car axles	40.00 to 40.50
Wrought arch bars and transoms	39.00 to 39.50
No. 1 railroad wrought	33.00 to 33.50
No. 2 railroad wrought	30.00 to 30.50
Railroad springs	30.00 to 30.50
Steel couplers and knuckles	38.00 to 39.00
Locomotive tires, smooth inside, 42 in. and over	38.00 to 39.00
No. 1 dealers' forge	24.00 to 24.50
Cast iron borings	14.50 to 15.00
No. 1 busheling	22.00 to 22.50
No. 1 boilers cut to sheets and rings ..	20.50 to 21.00
No. 1 railroad cast scrap	20.50 to 21.00
Stove plate and light cast scrap	16.50 to 17.00
Railroad malleable	27.00 to 27.50
Agricultural malleable	22.00 to 22.50
Pipes and flues	19.50 to 20.00
Heavy railroad sheet and tank scrap ..	18.00 to 18.50
Railroad grate bars	17.50 to 18.00
Machine shop turnings	14.50 to 15.00
Country mixed scrap	14.00 to 15.00

San Francisco

SAN FRANCISCO, Aug. 10.—Nothing has occurred to ameliorate the stringent conditions of supply. Prices and terms of delivery are rigid, old materials being the only line showing any degree of flexibility, or any change other than that of advances. Mills and jobbers' offices are badly congested with orders which there is no immediate prospect of filling. Preference is given Government requirements, and, although contracts in bulk are being placed by the Government with the Eastern mills, the numerous rush orders given to local concerns aggregate a formidable amount. At Camp Fremont, the army cantonment in process of construction south of San Francisco, the Government is expending some \$2,000,000, and this, in conjunction with many other works undertaken to provide for the needs of the Army and Navy, means a constant stream of orders for local mills and jobbers. On some lines deliveries are a little easier than on others, but speaking broadly, there is no relaxation in the difficulties of obtaining material at such long range.

Bars.—Local mills are not accepting orders, except when they have contracts for tonnage, as rollings are booked for a long time ahead. Stocks in hands of jobbers are very low. Quotations on bars have been withdrawn by the mills, which will quote only on receipt of specifications. Jobbers' quotations for merchant steel bars, out of stock, are 6c., base price; reinforcing bars, out of stock, carload lots, 5.50c.; less than carload lots, 6c. On account of the serious shortage in structural steel, 12 large buildings, on which work is about to be commenced, will not be constructed of steel and brick, but of reinforced concrete instead. This means an extra strain on a market already taxed to its utmost.

Structural Materials.—Structural shapes are quoted, tentatively, on a basis of 6.50c. by the local mills. This base price, however, cannot be relied upon, as the supply is so shortened and the demand so great that prices are governed largely by the necessities of the buyer. Some of the local fabricators have contracts with buyers sufficient to keep them running the rest of the year, yet they are not busy at the present time, because of the difficulties in the way of obtaining material. One concern placed an order for 5000 tons of

steel with an Eastern mill, but has not yet been able to get delivery.

Plates.—It is becoming an increasingly difficult problem to obtain ship plates for the shipyards here. With the export of ship plates to Japan stopped, there will be more available for the yards in this vicinity and up the coast. New ship yards, however, are being established so plentifully on the Coast that it is not easy to forecast the future supply. Jobbers quote tank plates ¼-in. at 10c., with flanges at 10.25c., base price.

Sheets.—Sheets are now scarcer in this market than any other line of iron and steel, and stocks are almost entirely depleted. There is none available for export. The demand is of such an insistent nature that buyers are willing to pay premiums for reasonably early delivery. Recently, Eastern mills have been wiring jobbers, offering limited tonnage for prompt shipments. The situation is so uncertain as to price that jobbers seem reluctant about placing orders for extended deliveries until the price situation in the East has cleared up. Jobbers' quotations are: 13.03c. for No. 28 galvanized and for blue annealed No. 10, 11c., net 30 days, no discounts.

Wrought Pipe.—There has been considerable activity of late in the export of wrought pipe to Japan, which in all probability will cease after Aug. 15. This will prove of benefit to the local market, which is bare of supplies, with demand so heavy that jobbers decline to quote.

Cast Iron Pipe.—But little is being done in construction work, necessitating the utilization of cast iron pipe. The city of Pasadena is receiving bids for 100 tons of 4, 6 and 8-in. pipe, which is the only order of any commendable size placed on the market lately. The base price quotation remains at \$60. At Camp Fremont, the U. S. Army Department is to use 6 and 12-in. wood stave pipe instead of iron pipe; partly for economy and partly because of delayed transportation.

Pig Iron.—Nearly all the local mills and foundries are operating under contracts for pig iron, made some-time ago; consequently they are not hampered to any extent by inability to obtain supplies. So little is being done on this market in pig iron that no basis of value, other than Eastern quotations, can be established.

Coke.—The market here has been stripped clean of coke and no firm quotations can be obtained. As high as \$30 a ton has been paid lately. Some of the smaller foundries have been forced to use inferior grades.

Old Materials.—Nervousness over the approaching embargo has induced holders to accept lower figures and the scrap market is weakening. Good country scrap can be bought for \$23.50, old rails for \$29, and heavy melting for \$33. Scrap has been arriving from Mexico in limited quantities; most of it destined for Japan. While stories of immense piles of scrap in Mexico have been somewhat exaggerated, there is a considerable quantity lying at a Mexican Gulf port, which would all be shipped here but for the opposition of the Mexican Government.

Buffalo

BUFFALO, Aug. 14.

Pig Iron.—Very little iron of any grade is being sold by Buffalo district furnaces because of the pronounced scarcity of iron not already under contract for a long period ahead and the further reason that users are as a rule simply sitting by awaiting developments. As a consequence, there is not much new business to report, carloads and small lots for emergency use being the only business transacted. Two small lots of 4 to 5 per cent silicon commanded \$57 to \$58 for delivery during the remainder of the year and one small tonnage of 2.25 to 2.75 per cent silicon was noted as taken at \$54.50. Average foundry grades brought \$55 for small tonnages. A 100-ton lot was reported taken by the Troy furnace at \$53; but only a small proportion of the product of that furnace for remainder of year remains unsold. The basic iron situation is a little easier, although apparently none is being offered by the furnaces

of this district, it is procurable from other districts. An inquiry for 500 tons is now being negotiated. There is no change in prices for 1918 delivery and we quote nominal prices for such delivery the same as a week ago, as follows, f.o.b. furnace, Buffalo:

High silicon irons	\$55.00 to \$56.00
No. 1 foundry	54.00 to 55.00
No. 2 X foundry	53.00 to 55.00
No. 2 plain	52.00 to 54.00
No. 2 foundry	51.00 to 53.00
Gray forge	51.00 to 53.00
Malleable	54.00 to 55.00
Basic	54.00 to 55.00
Lake Superior charcoal, f.o.b. Buffalo.	55.00 to 60.00

Finished Iron and Steel.—Buying, aside from orders covering Government work, is almost at a standstill, and general inquiry is of smaller volume, because buyers have apparently come to the conclusion that orders cannot be entered until Government requirements are taken care of. For such small tonnages as are moving, prices are above the nominal schedules of the leading producing interest. One producer of the district is, it is understood, offering fourth quarter contracts to its customers at 4½c. for bars and structural material and 8c. for plates. The selling agency of the largest manufacturer of turn-buckles reports prices have been advanced 10 to 20 per cent, according to new classification recently put into effect, which creates separate classification for turn-buckles, with stubs, 1 in. and under; 1½ to 1¾ in.; 1½ to 1¾ in., and 2 in. and over, with the same classification applying also to turn-buckles without stubs, which is quite a departure from the old classification. All inquiries are required to be submitted to the mill headquarters before acceptance. One of the contributing causes to this price advance is the expected heavy demand developing from the construction by the Government for turn-buckles for use in roof trusses, etc., for cantonment and aviation field buildings. The John W. Cowper Co., Buffalo, which has the general contract for factory and office buildings for the Curtiss Engineering Corporation at Garden City, L. I., has sub-let the structural steel, 800 tons, to the Ferguson Steel & Iron Co., Buffalo.

Old Material.—No buying of heavy melting steel has developed during the week and the market is sentimentally weaker in consequence. No stocks of this commodity are on hand in dealers' yards available for immediate shipment and on that account dealers are not inclined to make selling contracts, as in their opinion, as soon as demand is resumed, prices are bound to advance again. The fact that stocks in the hands of consumers are getting lower, will, they think, make visible a buying movement in the near future and push the market up. The week has shown an active demand for carwheels, railroad malleable and stove plate; but at no change in prices except for stove plate, which advanced 50c. to \$1 per ton. In all other lines, trade has been practically at a standstill. Prices for wrought pipe, No. 1 and No. 2 busheling scrap and bundled sheet stamping scrap have receded slightly. We quote dealers' asking prices, per gross ton, f.o.b. Buffalo, as follows:

Heavy melting steel	\$31.00 to \$33.00
Low phosphorus	45.00 to 48.00
No. 1 railroad wrought	43.00 to 45.00
No. 1 railroad and machinery cast	30.00 to 31.00
Iron axles	45.00 to 50.00
Steel axles	45.00 to 50.00
Carwheels	35.00 to 36.00
Railroad malleable	33.00 to 34.00
Machine shop turnings	18.00 to 19.00
Heavy axle turnings	26.00 to 27.00
Clean cast borings	20.00 to 21.00
Iron rails	43.00 to 44.00
Locomotive grate bars	20.00 to 21.00
Stove plate	21.00 to 22.00
Wrought pipe	29.00 to 30.00
No. 1 busheling scrap	28.00 to 29.00
No. 2 busheling scrap	18.00 to 19.00
Bundled sheet stamping scrap	20.00 to 21.00

British Steel Market

Pig Iron More Active—Strong Demand for Finished Materials

LONDON, Aug. 14—(By cable).

Pig iron is more active. Hematite is strong. Basic output is increasing. American semi-finished

material is strong. Wire rods are selling at \$28 to \$30 c.i.f., according to delivery. Tin plates are slow. Ferromanganese is nominal.

Benzol is quoted at 13d. and toluol and ammonium sulphate are unchanged. We quote as follows:

Tin plates, coke 14 x 20; 112 sheets, 108 lb., f.o.b. Wales, maximum, 30s.
Black sheets, £21 5s.
Ferromanganese, £45 nominal.
Ferrosilicon, 50 per cent, c.i.f., £35 upward.
On other products control prices are as quoted in THE IRON AGE, of July 19, p. 171.

Very Strong Demand Continues—Government Control Tightens

LONDON, ENGLAND, Aug. 3.—The tightening of control exercised by the authorities in one direction or another still further handicaps merchant business. This policy, of course, is chiefly connected with efforts made to protect steel supplies for national safety, and to keep down prices. Government requirements are more likely to increase than to diminish, and all available capacity is thus fully engaged in face of an insatiable demand, especially for steel material.

There is no alteration in pig iron, but the outlet for foundry descriptions looks like expanding with the turn of the month, in view of the greater demand from Scotland, where reserve stocks have run so low that the August allocations will be made on a larger scale to home consumers, with a possible further increase in the exports to Allies, as the output has been developed sufficiently to permit of this, provided additional steamer tonnage facilities can be secured. Greater efforts are being made in the Cleveland district to accelerate the output of ironstone for the production of basic iron. The supply of both basic and hematite still falls short of home and allied requirements owing to the phenomenal strain upon steel producers. Italy continues a pressing buyer of hematite, while the execution of old contracts for that country has remained much in arrears. The pressure upon East Coast hematite furnaces is greater than ever, while the Scotch output is all needed locally.

Conditions in semi-finished steel are absolutely dominated by the huge calls made for war needs, these absorbing the great bulk of current home output, so that very little spare material is available to satisfy requirements elsewhere. There is no prospect of relief for ordinary purposes and shell discards are disappearing as fast as they become available. As regards American material, only wire rods can be secured in limited quantities, at about £29 to £30 c.i.f. Liverpool, but merchants here expect that makers terms will be shortly raised considerably. Business in billets is absolutely dead.

Constant Influx of Orders

The position in finished iron and steel seems tighter, the constant heavy influx of orders, more particularly for steel, contrasting with a pronounced dearth of offers, and the possibility of reserve stocks accruing is more remote than ever, while the bulk of current output is already earmarked months ahead, and numerous old contracts are still outstanding. Merchants relying on the mills for relief are disappointed at the lack of response to their urgent applications. The scope for new business in uncontrolled material seems undergoing a further contraction, for the position in this direction is effected by the pressure upon the controlled branches. The tendency of prices all around is very firm. The price of mattress wire has been raised another £4 to £56 in the Birmingham district. Mild steel bars have been selling lately up to £18.10 net delivered to the home trade. Iron bar makers are heavily booked and North Staffordshire Crown bars stand at £13.15 f.o.t. at works.

Deadlock in Tin Plate

There has been a deadlock in the tinplate market since this has been taken under control, with the maximum basis price fixed at 30s. for I.C. 20 x 14 net at maker's works for all orders and contracts closed on July 19 and after. There are plenty of orders await-

ing to be placed, but makers are already fully booked and keeping aloof as well as merchants, pending the publication of the full and definite official order giving a schedule of all extras and allowances over the basis price. Merchants have been badly upset by this price regulation in view of the commitments they have outstanding, that were entered into at considerably higher prices prior to the regulation. Their position is more particularly awkward having regard to stock lots that were free from permit restrictions and sold up to 44s. per box basis. This concession has been withdrawn although holders of such free stock lots have been given permission to dispose of them without certificate until Aug. 31. The allocations of steel to the mills are more restricted than ever, and the output suffered a further contraction last month.

There has been no further change in ferromanganese, the tone, however, being strong owing to the rarity of offers. Prices are nominally on the basis of about £80 f.o.b. for loose for far forward shipment to Continental ports, and about \$400 c.i.f. North American Atlantic ports. Requirements are somewhat more pressing in Indian manganese ores, but until the scarcity of tonnage can be remedied, new business is virtually at a standstill, and the tone is strong, the price being about 3s. 6d. per unit c.i.f. United Kingdom ports.

New York

NEW YORK, Aug. 15.

Pig Iron.—The pig iron market is lifeless, drifting along while awaiting action by the Government in regard to prices. The car situation is extremely bad, especially in New England. Embargoes exist against many shipping points and very little iron is being moved. The New Jersey open hearth steel works, which has been inquiring for 5000 tons of basic for the last quarter of this year, has not yet closed and may not do so. The same is true of several inquiries for foundry iron. Nothing more is heard about backlog sales for the furnace at Troy, N. Y., and the Buffalo market seems to be firm. The recent purchase of 6000 tons of foundry grades by the Navy Department at \$27.50, furnace, has aroused some discussion. This transaction, however, is not important, and the \$27.50 is not a final price, which is left to be determined by the Federal Trade Commission. The 6000 tons was for early delivery and divided among a number of furnaces in eastern Pennsylvania, Virginia and New Jersey. We quote for tidewater delivery in the near future as follows:

No. 1 foundry	\$53.25 to \$54.25
No. 2 X	52.75 to 53.75
No. 2 plain	52.50 to 53.50
Southern No. 1 foundry	52.75 to 53.75
Southern No. 2 foundry and soft	52.25 to 53.25

Structural Steel.—With 85,000 tons fabricating capacity, or according to the Bridge Builders & Structural Society, 41½ per cent of the country's total theoretical output, as the total of July business, one has a measure of the low ebb of new inquiry. Delivery promises on new offerings may with a few mills show signs of betterment, growing out of possible rearrangement of mill rolling schedules because of uncertainty of obtaining permits for export shipments, but no general improvement in this direction has been noted and prices remain strong. Numerous fabricators are in need of work and the period of uncertainty, awaiting on Government settlement of price questions, is not reassuring. The steel work for the Philadelphia subway is finally closed and it is possible all of this was included in July's totals. It includes 15,000 tons to be supplied by the McClintic-Marshall Co. and 7200 tons to be fabricated by the American Bridge Co. Additional steel work, amounting to 4500 tons, is now up for figures for the Beacon Light & Power Co. at Chester, Pa. For the Pennsylvania Railroad fresh bridge inquiries call for 1000 tons and for the Central Railroad of New Jersey 200 tons for a coal pier has been closed. Three buildings, to take 500 tons, are to be built at Elmira, N. Y., for the Willys-Morrow Co. The Richmond Structural Steel Co. is to furnish 200 tons in crane runways for the Richmond, Va., plant of the American Locomotive

Co. We quote plain material from mill at 4.669 to 5.169c., New York, according to the delivery. Shipments from warehouses are 5c. to 5.25c. per pound, New York, according to sizes desired.

Steel Plates.—There are rumors that mills having a large percentage of orders for export may be able to make better deliveries on domestic account, particularly if the embargo on export shipments for other than war purposes is not soon lifted. So far no new transactions were learned of to indicate any change in delivery dates or prices. A distribution of about 9000 cars for the Government's railroad in France has been made, as noted elsewhere, and a large lot of locomotives have also been closed on this account. This work will get precedence and in this respect counts as another obstacle to the early delivery of plates to industrial plants having other Government work, as boiler furnaces, essential for ships under construction but so far removed from more towering contracts as not to command, apparently, any priority so far as the material producers are concerned. We quote tank plates for mill shipment at 10.169c., New York, and ship plates at 12.169c., New York. Plates out of store are 8c. to 9c. for tank quality and 8.50c. to 11c. for ship plates.

Iron and Steel Bars.—A lot of 1000 tons of soft steel bars for nearby shipment has been sold at 5c., Pittsburgh, and a smaller lot for concrete reinforcing purposes has been closed at better than 4.50c., Pittsburgh, for delivery in September. Generally new business is flat, even in export, except possibly in bar iron, of which some sizeable sales have been made at 4.75c. and 5c., Pittsburgh basis. In the absence of sales of importance, we continue to quote steel bars in mill shipments at 4.669c. to 5.669c., New York. We quote mill shipments of bar iron at 4.919c. to 5.169c., New York. From New York district warehouses steel and iron bars are sold at 5c. to 5.50c.

Cast Iron Pipe.—The Government is urging deliveries on pipe recently purchased, including some intended for shipment to France and other tonnages for shipment to cantonments. Business is not active either in pipe lettings or private contracts. Carloads of 6-in., 8-in. and heavier are quoted at \$65.50 per net ton, tidewater, and 4-in. at \$68.50.

Old Material.—Embargoes declared by the Pennsylvania and other railroads have brought about almost complete stagnation in the old material market. The Government has taken more than 20,000 cars additional for its own use in hauling various kinds of supplies. This means that the cars available for the hauling of scrap are greatly reduced. In one case a consignment of scrap was rejected and could not be shipped to its original destination, but the shipper was not able to ship it to a yard at Reading for the reason that embargo had been declared against that city. What would become of the scrap was at last accounts not determined. Prices are nominal and tending downward. Brokers quote buying prices as follows to local producers and dealers per gross ton, New York:

Heavy melting steel scrap (for shipment to eastern Pennsylvania)	\$29.50 to \$30.50
Old steel rails (short lengths) or equivalent heavy steel scrap	29.50 to 30.50
Relaying rails	65.00 to 70.00
Rerolling rails	39.00 to 40.00
Iron and steel car axles	42.00 to 43.00
No. 1 railroad wrought	41.00 to 42.00
Wrought-iron track scrap	32.00 to 33.00
No. 1 yard wrought long	32.00 to 33.00
Light iron	10.00 to 12.00
Cast borings (clean)	21.00 to 21.50
Machine-shop turnings	18.00 to 19.00
Mixed borings and turnings	16.50 to 17.00
Wrought-iron pipe (1 in. minimum diameter, not under 2 ft. long)	30.00 to 31.00

For cast-iron scrap dealers in New York City and Brooklyn are quoting as follows to local foundries per gross ton:

No. 1 machinery cast	\$34.00 to \$35.00
No. 1 heavy cast (column, building material, etc.)	29.00 to 30.00
No. 2 cast (radiators, cast boilers, etc.)	28.00 to 29.00
Stove plate	20.00 to 21.00
Locomotive grate bars	20.00 to 21.00
Old carwheels	33.00 to 34.00
Malleable cast (railroad)	32.00 to 33.00

Ferroalloys.—Quite a little ferromanganese has been bought in the past week for delivery in the last quarter

of this year and in the first half of 1918, the various transactions probably amounting to 6500 to 7000 tons. British licenses have been granted to one importer covering 5000 tons and of this amount 2200 tons is afloat. While this may be looked on as a loosening up of the British supply as compared with recent weeks, the amount is after all inconsequential in comparison with the present rate of consumption. Some increase in domestic production is to be looked for, but that too is inconsiderable. The smaller producers of steel apparently have a better supply in comparison with their needs than some of the larger interests. The price is around \$400 for early delivery and \$375 is obtained for fourth quarter shipment, while for the most part \$350 is the basis for 1918. Consumers having relatively low priced ferromanganese coming to them on their contracts are naturally pressing for its delivery but are finding no lessening of the difficulty of getting long overdue shipments from Great Britain. A loss of 530 tons of spiegeleisen is reported in connection with the sinking of the Quernmore last week. For 20 per cent spiegel the market holds around \$85 at furnace. The movement in ferrosilicon continues good, with conditions of supply and demand practically the same. Imports in the past year have shown a fair increase. Sales for early delivery are made at \$200 and for delivery next year \$130 has been done.

Cleveland

CLEVELAND, Aug. 14.

Iron Ore.—So severe has become the freight car congestion at lower Lake ports that shipment of Lake Superior ore inland has come almost to a standstill in certain sections. Lake vessels carrying ore are compelled to anchor off unloading ports in large numbers because they cannot unload. At times, fully a dozen vessels are swinging idly off the Cleveland Harbor awaiting their turns to proceed to the unloading docks. One day last week 17 such vessels lay off Ashtabula Harbor, while trains upon trains of loaded ore cars occupy sidings all the way south to Youngstown, unable to move, it is said by Cleveland ore authorities, because of lack of motive power. Committees of ore shippers, vessel men, coal shippers and railroad authorities have been wrestling with the various problems involving both ore and coal transportation, and some order is being brought about. It is figured now that 60,000,000 tons of ore will be the minimum that blast furnaces will require to operate until the new ore becomes available on June 1 next year, and at the same time 32,000,000 tons of bituminous coal and anthracite must be carried to the Northwest. In the effort to utilize the coal and ore unloading facilities at Toledo and Sandusky, they have been worked far beyond their normal capacity, and yet relief has not been adequate. To-day it has become manifest heroic measures must be resorted to, and, despite requisitions for certain maximum tonnages of ore made by individual furnaces, allotments of ore tonnages are being prepared and forwarded to furnaces. They will receive the tonnages of ore thus allotted and no more. Because of the mix-up in the railroad situation, it is the belief of competent Cleveland ore trade authorities that little, if any, more than 55,000,000 tons can be brought down this season in vessels, which would mean about 56,000,000 or 57,000,000 tons for the season by rail and water. In the meantime, every effort is being exerted by ore, coal and transportation men to remedy the present situation, and they will continue to exert every endeavor throughout the remainder of the season. But the handicap under which the season began, about 3,300,000 tons up to June 1, is a difficult one to overcome.

Pig Iron.—Little pig iron business is being done by any of the furnace or sales concerns in this city. Inquiries have fallen to the minimum and sales are almost nil. For instance, one large furnace interest the past week sold one carload of iron, while another disposed of five carloads. All was sold at the basis of \$55, furnace, whether from Cleveland, Valley or Toledo furnaces. Shipments are going forward steadily from all stacks and melters are insistent upon steady deliveries of iron. No. 2 stack of the River furnaces of Cor-

rigan, McKinney & Co. has been blown out after a campaign lasting almost five years, or ever since the stack was first lighted after being built. The stack is out for relining and will be lighted again just as soon as possible. We quote, f.o.b. Cleveland, as follows for prompt delivery:

Bessemer	\$55.95
Basic	\$53.30 to 55.30
Northern No. 2 foundry	55.30
Southern No. 2 foundry	51.00 to 54.00
Gray forge	50.95 to 52.95
Ohio silvery, 8 per cent silicon	88.62
Standard low phos. Valley furnace	85.00

Coke.—Contracting for coke has about disappeared in Cleveland either for furnace or foundry fuel. Almost all purchases made are for prompt delivery, or for no longer periods than a month. The sudden spurt the latter part of the week of the furnace coke price to around \$15.50 to \$16, ovens, for some small tonnages brought little surprise in Cleveland where it had been observed deliveries were below par. The decline of 46,000 tons in Connellsville coke shipments for the week ending Aug. 4 explains the sudden rise in price, the falling off in production being laid to short and inefficient oven labor supplies and not to lack of cars. The car supply had been 100 per cent up to the decline in production, but now the Monongahela railroad has withdrawn many of its cars, claiming they have not been loaded. Last Saturday, Cleveland coke makers received a long telegram from the Federal Trade Commission at Washington calling upon them to make report within three days of all coke oven producing costs for last year and June of this year in detail. This is believed to foreshadow a price fixing campaign on Connellsville coke by this federal body.

Semi-Finished Steel.—While reports have come to Cleveland steel makers of weakness having developed in the semi-finished steel markets in the Pittsburgh district, no change in prices is announced here. No inquiries of moment have been received by Cleveland mills for either billets or sheet bars, so that they have not been compelled to quote or even talk price. They expect, however, if selling actually begins upon the new basis, they will have to come down to \$90 or thereabouts.

Finished Steel.—While there had been some feeling that a change in the wire products markets might come about around Aug. 1, but that date has come and gone and nothing has occurred to change the present anomalous wire price situation. Cleveland jobbers find the American Steel & Wire Co. is making better deliveries of wire nails at \$3.20, mill, per keg and they say, if this continues, they will be satisfied. Independent companies which have continued to ask \$4 per keg admit that they are getting few specifications at the high price. A local representative of an eastern plate mill the past week was permitted to offer for sale 500 tons of plate that had been destined originally for Japanese shipment, the price to be 8.50c. However, after canvassing the northern Ohio market, the Cleveland concern sold only about 50 tons. Another downstate consumer who had a surplus of plates sent out a list containing 400 tons and offered them at 8c. He, too, sold only a few tons at that price. It is known one Cleveland mill is offering to book fourth-quarter plates at 8.50c., and specifications are coming in slowly to such mills as took orders for plates for third quarter delivery at 10c. Several manufacturing projects offer prospects for some hundreds of tons of structural steel material, but private building is very limited. The Cleveland Motor Plow Co., Rollin C. White president, has awarded to the S. W. Emerson Co. contracts for building two structures 62 x 500 and 80 x 100 feet respectively for shops, while the Grant Motor Corporation has given a contract to the W. I. Thompson & Son Co. for the first unit of its proposed plant, 60 x 280 feet, estimated to cost \$80,000. The concrete bar market is showing further softness, and while 4c. is the usual price for bars, it is said 3.50c. can be done without trouble for fair sized tonnages.

Old Materials.—Heavy melting steel has receded about \$1 a ton although this has been due largely to trading between dealers. Heavy steel consumers are not in the market at this time. The railroads have

disposed of their lists at slight concessions which helped the market downward about 50 cents a ton all along the line. Dullness still is the characteristic feature to the local scrap market. We quote, f.o.b. Cleveland, as follows:

Per Gross Ton	
Steel rails	\$30.50 to \$31.50
Steel rails, rerolling	44.50 to 45.50
Steel rails, under 3 ft.	36.50 to 37.50
Iron rails	42.50 to 43.50
Steel car axles	26.00 to 26.50
Heavy melting steel	30.00 to 32.00
Carwheels	30.50 to 31.50
Relaying rails, 50 lb. and over	49.50 to 54.50
Agricultural malleable	23.50 to 24.50
Railroad malleable	30.50 to 31.50
Light bundled sheet scrap	23.50 to 24.50
Per Net Ton	
Iron car axles	\$46.50 to \$47.00
Cast borings	17.50 to 18.00
Iron and steel turnings and drillings	16.50 to 17.00
No. 1 busheling	25.00 to 25.50
No. 1 railroad wrought	40.50 to 41.50
No. 1 cast	28.50 to 29.50
Railroad grate bars	21.00 to 22.00
Stove plate	20.50 to 21.50

IRON AND INDUSTRIAL STOCKS

Wall Street Uneasy Concerning Government Attitude on Steel Prices

Considerable uncertainty prevailed in the stock market last week. Wall Street was still worried about the attitude of the Government concerning prices, particularly prices of steel products, and the effect of this worrying was shown in the depressed condition of steel stocks for the most part. Fear was expressed that in adjusting prices of finished steel products due allowance would not be made for the greatly increased cost of raw materials. The final report of the Department of Agriculture promises a very large supply of grain. The total yield is expected to be greater than that of last year, although there is some shortage in wheat. The range of prices on active iron and steel stocks from Wednesday of last week to Tuesday of this week was as follows:

Allis-Chal., com.	29 - 30%	Int. Har. of N. J., com.	114 - 116
Allis-Chal., pref.	86 - 86 1/2	Int. Har. Corp., com.	75 - 78 1/2
Am. Can., com.	46 1/2 - 48 1/2	Lacka. Steel	88 1/2 - 92 1/2
Am. Can., pref.	109	Lake Sup. Corp.	16 1/2 - 17
Am. Car & Fdry., com.	74 1/2 - 77 1/2	Lukens, 1st pref.	102
Am. Loco., com.	69 1/2 - 71 1/2	Midvale Steel	57 - 58 1/2
Am. Loco., pref.	103 1/2 - 104	Nat.-Acme	35
Am. Rad., com.	295 - 300	Nat. En. & Stm., com.	42 1/2 - 43 1/2
Am. Ship, com.	92 1/2 - 95 1/2	Nat. En. & Stm., pref.	99 1/2
Am. Ship, pref.	94 1/2 - 97 1/2	N. Y. Air Brake	136
Am. Steel Fdries.	67 1/2 - 72	Nova Scotia Stl.	101 - 110
Bald. Loco., com.	69 1/2 - 73	Pitts. Steel, pref.	99 1/2 - 100
Beth. Steel, com.	116 1/2 - 125	Pressed Stl., com.	72 1/2 - 73
Beth. Steel, class B	112 1/2 - 124	Pressed Stl., pref.	101 1/2 - 102
Beth. Steel, pref.	115 1/2 - 115 1/2	Ry. Steel Spring, com.	51 1/2 - 52 1/2
Cambria Steel	155	Ry. Steel Spring, pref.	98 1/2 - 98 1/2
Carbon Stl., com.	95 - 98	Republic, com.	88 1/2 - 91 1/2
Case (J. I.), pref.	83 1/2	Republic, pref.	103 1/2 - 104
Central Fdry., com.	34 1/2 - 36 1/2	Sloss, com.	54 1/2 - 56
Central Fdry., pref.	51 - 53 1/2	Sloss, pref.	93
Charcoal Iron, com.	8 1/2 - 8 1/2	Superior Steel	45 - 46
Chic. Pneu. Tool	69 1/2	Un. Alloy Steel	43 1/2 - 44
Colo. Fuel	47 1/2 - 49 1/2	U. S. Pipe, com.	21 - 21 1/2
Cruc. Steel, com.	80 1/2 - 83 1/2	U. S. Pipe, pref.	54 1/2 - 56
Cruc. Steel, pref.	102 1/2 - 103	U. S. Steel, com.	122 1/2 - 126 1/2
Deere & Co., pref.	100 - 100 1/2	U. S. Steel, pref.	117 1/2 - 118
Gen. Electric	152 1/2 - 155 1/2	Westing. Elec.	48 1/2 - 49
Gt. No. Ore. Cert.	33 1/2 - 34 1/2		

Dividend Reduction

The Studebaker Corporation, at a meeting in South Bend, Ind., Aug. 7, declared the regular quarterly dividend of 1 1/4 per cent on the preferred stock and 1 per cent on the common stock. The previous annual rate on the common was 10 per cent. The reduction was explained by the president of the Corporation, A. R. Erskine, in his report, in part, as follows:

The net profits of the corporation for the first six months of this year amounted to \$2,966,198.37, after deduction for existing corporation income taxes, but without provision for excess profit taxes about to be enacted by Congress. The directors felt constrained to reduce the dividend on the common stock on account of the uncertainties of the future and the consequent necessity of conserving working capital.

The sales of automobiles in the first quarter of this year

exceeded those of any previous similar quarter, but upon the entrance of our country into the war, sales declined, and our second quarter was unsatisfactory. Factory production schedules were changed in May to conform to the reduced volume of business, and we are now operating on a 65 per cent schedule as compared with last year. The effect of reduced volume in quantity production increases overhead costs, and when coupled with the existing high costs of materials and labor, is damaging to the profits of the business. Since July 1, sales of cars have improved, and the present demand is for about 1000 cars per week.

The regular business in the vehicle division for the first six months was excellent, and promises to continue heavy throughout the year. In addition thereto, we have received orders from the Government for large quantities of escort wagons, ambulances, drinking wagons, harness, etc., with the result that our vehicle factories will operate to the limit of their capacity far into next year.

United Alloy Earnings

The United Alloy Steel Corporation, Canton, Ohio, earned total net profits in the first six months of this year of \$2,559,000, or 80 per cent, of its final net of \$3,088,000 in the entire year 1916. This is at the rate of \$10 a share for the year for the 500,000 shares of no par value.

July earnings were, however, the largest on record and indicate earnings of at least \$3,500,000 for this second half year. For the rest of the year the company will have the advantage of its entire new construction, giving it an ingot capacity of over 50,000 tons per month as against something over 25,000 tons per month in the early months of the year. The following tabulation of monthly earnings of United Alloy Steel shows the profits January to June:

January	\$176,917
February	207,114
March	411,158
April	635,037
May	691,989
June	437,455
Total net six months	\$2,559,672

Colorado Earnings Increase

Net earnings of the Colorado Fuel & Iron Co. in the three months ended June 30 last aggregated \$2,533,079, according to the quarterly report, an increase of \$801,885, compared with the corresponding period of 1916. Gross receipts were \$11,978,996, against \$8,214,403 a year ago. Operating expenses increased \$2,962,708.

The income statement for the quarter, compared with the corresponding period of 1916, follows:

	1917	1916
Gross receipts	\$11,978,996	\$8,214,403
Operating expenses	9,425,916	6,463,208
Net earnings from operations	\$2,553,079	\$1,751,195
Income from other sources	328,285	233,793
Total income	\$2,881,365	\$1,984,989
Deduct:		
Bond interest, taxes, sinking funds, etc.	803,181	708,568
Surplus for the quarter	\$2,078,183	\$1,276,420

Industrial Finances

The temporary receivership of the Stungo-Radium Rubber Co., at Washington, Pa., has been discontinued by the court. The temporary receivers were appointed upon petition of G. C. Swart, a stockholder, on behalf of himself and others. He alleged mismanagement and attempts to defraud the stockholders. The court stated that the company was incorporated under Delaware laws, that the acts complained of related to the internal management, over which the courts of Pennsylvania had no jurisdiction. Floyd Rose of Pittsburgh is president.

The change in the charter of the American Rolling Mill Co., Middletown, Ohio, from New Jersey to Ohio has been made and the capital stock of the company increased from \$8,000,000 common to \$20,000,000, and from \$800,000 preferred to \$1,500,000. These steps were necessary in the company's plans for merging with the Columbus Iron & Steel Co., Columbus, Ohio, which has now been accomplished.

Prices Finished Iron and Steel, f.o.b. Pittsburgh

Freight rates from Pittsburgh in carloads, per 100 lb.: New York, 16.9c.; Philadelphia, 15.9c.; Boston, 18.9c.; Buffalo, 11.6c.; Cleveland, 10.5c.; Cincinnati, 15.8c.; Indianapolis, 17.9c.; Chicago, 18.9c.; St. Louis, 23.6c.; Kansas City, 43.6c.; Omaha, 43.6c.; St. Paul, 32.9c.; Denver, 68.6c.; New Orleans, 30.7c.; Birmingham, Ala., 45c.; Denver pipe, 76.1c., minimum carload, 46,000 lb.; structural steel and steel bars, 76.1c., minimum carload, 40,000 lb.; Pacific coast (by rail only), pipe, 65c.; structural steel and steel bars, 75c., minimum carload, 60,000 lb. No freight rates are being published via the Panama Canal, as the boats are being used in transatlantic trade.

Structural Material

I-beams, 3 to 15 in.; channels, 3 to 15 in.; angles, 3 to 6 in. on one or both legs, 1/4 in. thick and over, and zees 3 in. and over, 4.50c.

Wire Products

Wire nails, \$4 base per keg; galvanized, 1 in. and longer, including large-head barb roofing nails, taking an advance over this price of \$2, and shorter than 1 in., \$2.50. Bright base wire, \$4.05 per 100 lb.; annealed fence wire, Nos. 6 to 9, \$3.95; galvanized wire, \$4.65; galvanized barb wire and fence staples, \$4.85; painted barb wire, \$4.15; polished fence staples, \$4.15; cement-coated nails, \$3.90 base, these prices being subject to the usual advances for the smaller trade, all f.o.b. Pittsburgh, freight added to point of delivery, terms 60 days net, less 2 per cent off for cash in 10 days. Discounts on woven-wire fencing are 43 per cent off list for carload lots, 42 per cent off for 1000-rod lots, and 41 per cent off for small lots, f.o.b. Pittsburgh.

Nuts and Bolts

Discounts in effect for large buyers are as follows, delivered in lots of 300 lb. or more, when the actual freight rate does not exceed 20c. per 100 lb., terms 30 days net, or 1 per cent for cash in 10 days.

Carriage bolts, small, rolled thread, 40 per cent, small cut thread, 35 and 2 1/2 per cent; large, 25 per cent.

Machine bolts, h. p. nuts, small, rolled thread, 40 and 10 per cent; small, cut thread, 40 per cent; large, 30 per cent.

Machine bolts, c. p. c. and t. nuts, small, 30 per cent; large, 20 per cent. Bolt ends, h. p. nuts, 30 per cent; with c. p. nuts, 20 per cent. Lag screws (cone or gimlet point), 45 per cent.

Nuts, h. p. sq. blank, \$2.10 off list, and tapped, \$1.90 off; hex. blank, \$1.90 off, and tapped, \$1.70 off; nuts, c. p. c. and t. sq. blank, \$1.70 off, and tapped, \$1.50 off; hex. blank, \$1.60 off, and tapped, \$1.40 off. Semi-finished hex. nuts, 50 and 10 per cent. Finished and case-hardened nuts, 50 and 10 per cent.

Rivets 7/16 in. in diameter and smaller, 40 per cent.

Wire Rods

Soft Bessemer and open-hearth rods to domestic consumers at \$95 to \$100; high-carbon rods made from ordinary open-hearth steel, \$100 to \$110, and special steel rods with carbons running from 0.40 to 0.60, \$100 to \$110 at mill; above 0.60 carbon, \$115 to \$120.

Railroad Spikes and Track Bolts

Railroad spikes 9/16 in. and larger, \$7.00 base; 3/4 in., 7/16 in. and 1/2 in., \$7.00. Boat spikes are occasionally quoted \$7.00 to \$8.00, all per 100 lb. f.o.b. Pittsburgh, but some makers are quoting higher. Track bolts with square nuts, 7c. to 1.50c. to railroads, and 8c. to 8.50c., in small lots, for fairly prompt shipment.

Steel Rails

Angle bars at 3.50c. to 3.75c. at mill, when sold in connection with orders for standard section rails, and on carload and smaller lots, 4c. to 4.25c. at mill. Light rails: 25 to 45 lb., \$75 to \$80; 16 to 20 lb., \$80 to \$81; 12 and 14 lb., \$82 to \$83; 8 and 10 lb., \$83 to \$84; in carload lots, f.o.b. mill, with usual extras for less than carloads. Standard Bessemer rails, \$38; open-hearth, \$40, per gross ton, Pittsburgh.

Tin Plate

Effective July 31, prices on all sizes of terne plate were advanced from \$2 to \$2.50 per package. Prices quoted by leading makers are now as follows: 8-lb. coating, 200 lb., \$16 per package; 8-lb. coating, I. C., \$16.30; 12-lb. coating, I. C., \$17.50; 15-lb. coating, I. C., \$18.25; 20-lb. coating, I. C., \$19; 25-lb. coating, I. C., \$20; 30-lb. coating, I. C., \$21; 35-lb. coating, I. C., \$22; 40-lb. coating, I. C., \$23 per package, all f.o.b. Pittsburgh, freight added to point of delivery.

Iron and Steel Bars

Steel bars at 4.50c. to 5c. for delivery late this year, and 5c. and higher from warehouse, in small lots for prompt shipment. Refined iron bars, 4.75c.; railroad test bars, 5.25c. in carload and larger lots f.o.b. mill.

Wrought Pipe

The following discounts on steel are to jobbers for carload lots on the Pittsburgh basing card in effect from May 1, 1917, all full weight, except for LaBelle Iron Works and Wheeling Steel & Iron Co., which quote higher prices, and National Tube Co., which adheres to card of April 1.

Butt Weld

Steel			Iron		
Inches	Black	Galv.	Inches	Black	Galv.
1/8, 1/4 and 3/8	42	15 1/2	1/8 and 1/4	23	+4
1/2	46	31 1/2	3/8	24	+3
3/4 to 3	49	35 1/2	1/2	28	10
			3/4 to 1 1/2	33	17

Lap Weld

Steel			Iron		
Inches	Black	Galv.	Inches	Black	Galv.
2	42	29 1/2	2	26	12
2 1/2 to 6	45	32 1/2	2 1/2 to 6	28	15
7 to 12	42	28 1/2	7 to 12	25	12
13 and 14	32 1/2	..			
15	30	..			

Butt Weld, extra strong, plain ends

Steel			Iron		
Inches	Black	Galv.	Inches	Black	Galv.
1/8, 1/4 and 3/8	38	20 1/2	1/8, 1/4 and 3/8	22	5
1/2	43	30 1/2	1/2	27	14
3/4 to 1 1/2	47	34 1/2	3/4 to 1 1/2	33	18
2 to 3	48	35 1/2			

Lap Weld, extra strong, plain ends

Steel			Iron		
Inches	Black	Galv.	Inches	Black	Galv.
2	40	28 1/2	2	27	14
2 1/2 to 4	43	31 1/2	2 1/2 to 4	29	17
4 to 6	42	30 1/2	4 1/2 to 6	28	16
7 to 8	38	24 1/2	7 to 8	20	8
9 to 12	33	19 1/2	9 to 12	15	3

To the large jobbing trade an additional 5 per cent is allowed over the above discounts, which are subject to the usual variation in weight of 5 per cent. Prices for less than carloads are four (4) points lower basing (higher price) than the above discounts on black and 5 1/2 points on galvanized.

On butt and lap weld sizes of black iron pipe, discounts for less than carload lots to jobbers are seven (7) points lower (higher price) than carload lots, and on butt and lap weld galvanized iron pipe are nine (9) points lower (higher price).

Boiler Tubes

Nominal discounts on less than carload lots, freight added to point of delivery, effective from Nov. 1, 1916, on standard charcoal iron tubes, and from April 2, 1917, on lap-welded steel tubes are as follows:

Lap-Welded Steel		Standard Charcoal Iron	
Inches	Discount	Inches	Discount
1 1/4 and 2 in.	31	1 1/2 in.	23
2 1/4 in.	28	1 3/4 and 2 in.	35
2 1/2 and 2 3/4 in.	34	2 1/4 in.	32
3 and 3 1/4 in.	34	2 1/2 and 2 3/4 in.	38
3 1/2 to 4 1/2 in.	34	3 and 3 1/4 in.	43
5 and 6 in.	33	3 1/2 to 4 1/2 in.—No quotations	..
7 to 13 in.	30	5 and 6 in.	37
		7 to 13 in.	34

Above discounts apply to standard gages and to even gages not more than four gages heavier than standard in standard lengths. Locomotive and steamship special charcoal grades bring higher prices.

1 1/4 in., over 18 ft., and not exceeding 22 ft., 10 per cent net extra.

2 in. and larger, over 22 ft., 10 per cent net extra.

Sheets

Makers' prices for mill shipments on sheets of United States standard gage, in carload and larger lots, are as follows, 30 days net, or 2 per cent discount in 10 days. [Open-hearth stock, \$5 per ton above these prices.]

Blue Annealed—Bessemer

Nos.	Cents per lb.
Nos. 3 to 8	8.00 to 8.50
Nos. 9 and 10	8.25 to 8.50
Nos. 11 and 12	8.50 to 8.75
Nos. 13 and 14	8.75 to 9.00
Nos. 15 and 16	9.00 to 9.25

Box Annealed, One Pass Cold Rolled—Bessemer

Nos.	Cents per lb.
Nos. 17 to 21	8.30 to 8.80
Nos. 22 and 24	8.35 to 8.85
Nos. 25 and 26	8.40 to 8.90
No. 27	8.45 to 8.95
No. 28	8.50 to 9.00
No. 29	8.55 to 9.05
No. 30	8.65 to 9.15

Galvanized Black Sheet Gage—Bessemer

Nos.	Cents per lb.
Nos. 10 and 11	9.00 to 9.50
Nos. 12 and 14	9.10 to 9.60
Nos. 15 and 16	9.25 to 9.75
Nos. 17 to 21	9.40 to 9.90
Nos. 22 and 24	9.55 to 10.05
Nos. 25 and 26	9.70 to 10.20
No. 27	9.85 to 10.35
No. 28	10.00 to 10.50
No. 29	10.25 to 10.75
No. 30	10.50 to 11.00

Tin-Mill Black Plate—Bessemer

Nos.	Cents per lb.
Nos. 15 and 16	7.80 to 8.30
Nos. 17 to 21	7.85 to 8.35
Nos. 22 to 24	7.90 to 8.40
Nos. 25 to 27	7.95 to 8.45
No. 28	8.00 to 8.50
No. 29	8.05 to 8.55
No. 30	8.05 to 8.55
Nos. 30 1/2 and 31	8.10 to 8.60

disposed of their lists at slight concessions which helped the market downward about 50 cents a ton all along the line. Dullness still is the characteristic feature to the local scrap market. We quote, f.o.b. Cleveland, as follows:

Per Gross Ton	
Steel rails	\$30.50 to \$31.50
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Steel car axles	26.00 to 26.50
Heavy melting steel	30.00 to 32.00
Carwheels	30.50 to 31.50
Relaying rails, 50 lb. and over	49.50 to 54.50
Agricultural malleable	23.50 to 24.50
Railroad malleable	30.50 to 31.50
Light bundled sheet scrap	23.50 to 24.50
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Cast borings	17.50 to 18.00
Iron and steel turnings and drillings	16.50 to 17.00
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No. 1 railroad wrought	40.50 to 41.50
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Stove plate	20.50 to 21.50

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Wall Street Uneasy Concerning Government Attitude on Steel Prices

Considerable uncertainty prevailed in the stock market last week. Wall Street was still worried about the attitude of the Government concerning prices, particularly prices of steel products, and the effect of this worrying was shown in the depressed condition of steel stocks for the most part. Fear was expressed that in adjusting prices of finished steel products due allowance would not be made for the greatly increased cost of raw materials. The final report of the Department of Agriculture promises a very large supply of grain. The total yield is expected to be greater than that of last year, although there is some shortage in wheat. The range of prices on active iron and steel stocks from Wednesday of last week to Tuesday of this week was as follows:

Allis-Chal., com.	29 - 30 3/4	Int. Har. of N. J., com.	114 - 116
Allis-Chal., pref.	86 - 86 1/2	Int. Har. Corp., com.	75 - 78 1/2
Am. Can., com.	46 1/2 - 48 1/2	Lacka. Steel	88 3/4 - 92 3/4
Am. Can., pref.	109 - 110 1/2	Lake Sup. Corp.	16 1/4 - 17
Am. Car & Fdry., com.	74 3/4 - 77 1/4	Lukens, 1st pref.	102 - 102 1/2
Am. Loco., com.	69 1/2 - 71 3/4	Midvale Steel	57 - 58 3/4
Am. Loco., pref.	103 3/4 - 104	Nat. Acme	35 - 35 1/2
Am. Rad., com.	295 - 300	Nat. En. & Stm., com.	42 1/4 - 43 3/4
Am. Ship., com.	92 1/4 - 95 3/4	Nat. En. & Stm., pref.	99 3/4 - 100
Am. Ship., pref.	94 1/2 - 97 3/4	N. Y. Air Brake	136 - 136 1/2
Am. Steel Fdries.	67 1/2 - 72	Nova Scotia Stl.	101 - 110
Bald. Loco., com.	69 1/4 - 73	Pitts. Steel, pref.	99 1/2 - 100
Beth. Steel, com.	116 1/2 - 125	Pressed Stl., com.	72 1/4 - 73
Beth. Steel, class B	112 3/4 - 124	Pressed Stl., pref.	101 1/8 - 102
Beth. Steel, pref.	115 1/4 - 115 1/2	Ry. Steel Spring, com.	51 1/2 - 52 1/2
Cambria Steel	155 - 155 1/2	Ry. Steel Spring, pref.	98 1/4 - 98 1/2
Carbon Stl., com.	95 - 98	Republic, com.	88 3/4 - 91 3/4
Case (J. I.), pref.	83 3/4 - 84	Republic, pref.	103 1/4 - 104
Central Fdry., com.	34 3/4 - 36 1/2	Sloss, com.	54 1/2 - 56
Central Fdry., pref.	51 - 53 1/2	Sloss, pref.	93 - 93 1/2
Charcoal Iron, com.	8 3/4 - 8 3/4	Superior Steel	45 - 46
Chic. Pneu. Tool	69 1/2 - 69 1/2	Un. Alloy Steel	43 1/2 - 44
Colo. Fuel	47 3/4 - 49 1/4	U. S. Pipe, com.	21 - 21 3/4
Cruc. Steel, com.	80 1/4 - 83 1/4	U. S. Pipe, pref.	54 1/4 - 56
Cruc. Steel, pref.	102 1/2 - 103	U. S. Steel, com.	122 1/2 - 126 1/2
Deere & Co., pref.	100 - 100 1/2	U. S. Steel, pref.	117 1/2 - 118
Gen. Electric	152 1/2 - 155 1/4	Westing. Elec.	48 1/4 - 49
Gt. No. Ore. Cert.	33 3/4 - 34 3/4		

Dividend Reduction

The Studebaker Corporation, at a meeting in South Bend, Ind., Aug. 7, declared the regular quarterly dividend of 1 1/4 per cent on the preferred stock and 1 per cent on the common stock. The previous annual rate on the common was 10 per cent. The reduction was explained by the president of the Corporation, A. R. Erskine, in his report, in part, as follows:

The net profits of the corporation for the first six months of this year amounted to \$2,966,198.37, after deduction for existing corporation income taxes, but without provision for excess profit taxes about to be enacted by Congress. The directors felt constrained to reduce the dividend on the common stock on account of the uncertainties of the future and the consequent necessity of conserving working capital.

The sales of automobiles in the first quarter of this year

exceeded those of any previous similar quarter, but upon the entrance of our country into the war, sales declined, and our second quarter was unsatisfactory. Factory production schedules were changed in May to conform to the reduced volume of business, and we are now operating on a 65 per cent schedule as compared with last year. The effect of reduced volume in quantity production increases overhead costs, and when coupled with the existing high costs of materials and labor, is damaging to the profits of the business. Since July 1, sales of cars have improved, and the present demand is for about 1000 cars per week.

The regular business in the vehicle division for the first six months was excellent, and promises to continue heavy throughout the year. In addition thereto, we have received orders from the Government for large quantities of escort wagons, ambulances, drinking wagons, harness, etc., with the result that our vehicle factories will operate to the limit of their capacity far into next year.

United Alloy Earnings

The United Alloy Steel Corporation, Canton, Ohio, earned total net profits in the first six months of this year of \$2,559,000, or 80 per cent, of its final net of \$3,088,000 in the entire year 1916. This is at the rate of \$10 a share for the year for the 500,000 shares of no par value.

July earnings were, however, the largest on record and indicate earnings of at least \$3,500,000 for this second half year. For the rest of the year the company will have the advantage of its entire new construction, giving it an ingot capacity of over 50,000 tons per month as against something over 25,000 tons per month in the early months of the year. The following tabulation of monthly earnings of United Alloy Steel shows the profits January to June:

January	\$176,917
February	207,114
March	411,158
April	635,037
May	691,989
June	437,455

Total net six months.....\$2,559,672

Colorado Earnings Increase

Net earnings of the Colorado Fuel & Iron Co. in the three months ended June 30 last aggregated \$2,533,079, according to the quarterly report, an increase of \$801,885, compared with the corresponding period of 1916. Gross receipts were \$11,978,996, against \$8,214,403 a year ago. Operating expenses increased \$2,962,708.

The income statement for the quarter, compared with the corresponding period of 1916, follows:

	1917	1916
Gross receipts	\$11,978,996	\$8,214,403
Operating expenses	9,425,916	6,463,208
Net earnings from operations	\$2,553,079	\$1,751,195
Income from other sources	328,285	233,793
Total income	\$2,881,365	\$1,984,989
Deduct:		
Bond interest, taxes, sinking funds, etc.	803,181	708,568
Surplus for the quarter	\$2,078,183	\$1,276,420

Industrial Finances

The temporary receivership of the Stungo-Radium Rubber Co., at Washington, Pa., has been discontinued by the court. The temporary receivers were appointed upon petition of G. C. Swart, a stockholder, on behalf of himself and others. He alleged mismanagement and attempts to defraud the stockholders. The court stated that the company was incorporated under Delaware laws, that the acts complained of related to the internal management, over which the courts of Pennsylvania had no jurisdiction. Floyd Rose of Pittsburgh is president.

The change in the charter of the American Rolling Mill Co., Middletown, Ohio, from New Jersey to Ohio has been made and the capital stock of the company increased from \$8,000,000 common to \$20,000,000, and from \$800,000 preferred to \$1,500,000. These steps were necessary in the company's plans for merging with the Columbus Iron & Steel Co., Columbus, Ohio, which has now been accomplished.

Prices Finished Iron and Steel, f.o.b. Pittsburgh

Freight rates from Pittsburgh in carloads, per 100 lb.: New York, 16.9c.; Philadelphia, 15.9c.; Boston, 18.9c.; Buffalo, 11.6c.; Cleveland, 10.5c.; Cincinnati, 15.8c.; Indianapolis, 17.9c.; Chicago, 18.9c.; St. Louis, 23.6c.; Kansas City, 43.6c.; Omaha, 43.6c.; St. Paul, 32.9c.; Denver, 68.6c.; New Orleans, 30.7c.; Birmingham, Ala., 45c.; Denver pipe, 76.1c., minimum carload, 46,000 lb.; structural steel and steel bars, 76.1c., minimum carload, 40,000 lb.; Pacific coast (by rail only), pipe, 65c.; structural steel and steel bars, 75c., minimum carload, 60,000 lb. No freight rates are being published via the Panama Canal, as the boats are being used in transatlantic trade.

Structural Material

I-beams, 3 to 15 in.; channels, 3 to 15 in.; angles, 3 to 6 in. on one or both legs, $\frac{1}{4}$ in. thick and over, and zees 3 in. and over, 4.50c.

Wire Products

Wire nails, \$4 base per keg; galvanized, 1 in. and longer, including large-head barb roofing nails, taking an advance over this price of \$2, and shorter than 1 in., \$2.50. Bright base wire, \$4.05 per 100 lb.; annealed fence wire, Nos. 6 to 9, \$3.95; galvanized wire, \$4.65; galvanized barb wire and fence staples, \$4.85; painted barb wire, \$4.15; polished fence staples, \$4.15; cement-coated nails, \$3.90 base, these prices being subject to the usual advances for the smaller trade, all f.o.b. Pittsburgh, freight added to point of delivery, terms 60 days net, less 2 per cent off for cash in 10 days. Discounts on woven-wire fencing are 43 per cent off list for carload lots, 42 per cent off for 1000-rod lots, and 41 per cent off for small lots, f.o.b. Pittsburgh.

Nuts and Bolts

Discounts in effect for large buyers are as follows, delivered in lots of 300 lb. or more, when the actual freight rate does not exceed 20c. per 100 lb., terms 30 days net, or 1 per cent for cash in 10 days.

Carriage bolts, small, rolled thread, 40 per cent, small cut thread, 35 and 2½ per cent; large, 25 per cent.

Machine bolts, h. p. nuts, small, rolled thread, 40 and 10 per cent; small, cut thread, 40 per cent; large, 30 per cent.

Machine bolts, c. p. c. and t. nuts, small, 30 per cent; large, 20 per cent. Bolt ends, h. p. nuts, 30 per cent; with c. p. nuts, 20 per cent. Lag screws (cone or gimlet point), 45 per cent.

Nuts, h. p. sq. blank, \$2.10 off list, and tapped, \$1.90 off; hex. blank, \$1.90 off, and tapped, \$1.70 off; nuts, c. p. c. and t. sq. blank, \$1.70 off, and tapped, \$1.50 off; hex. blank, \$1.60 off, and tapped, \$1.40 off. Semi-finished hex. nuts, 50 and 10 per cent. Finished and case-hardened nuts, 50 and 10 per cent.

Rivets 7/16 in. in diameter and smaller, 40 per cent.

Wire Rods

Soft Bessemer and open-hearth rods to domestic consumers at \$95 to \$100; high-carbon rods made from ordinary open-hearth steel, \$100 to \$110, and special steel rods with carbons running from 0.40 to 0.60, \$100 to \$110 at mill; above 0.60 carbon, \$115 to \$120.

Railroad Spikes and Track Bolts

Railroad spikes 9/16 in. and larger, \$7.00 base; $\frac{3}{8}$ in., 7/16 in. and $\frac{1}{2}$ in., \$7.00. Boat spikes are occasionally quoted \$7.00 to \$8.00, all per 100 lb. f.o.b. Pittsburgh, but some makers are quoting higher. Track bolts with square nuts, 7c. to 7.50c. to railroads, and 8c. to 8.50c., in small lots, for fairly prompt shipment.

Steel Rails

Angle bars at 3.50c. to 3.75c. at mill, when sold in connection with orders for standard section rails, and on carload and smaller lots, 4c. to 4.25c. at mill. Light rails: 25 to 45 lb., \$75 to \$80; 16 to 20 lb., \$80 to \$81; 12 and 14 lb., \$82 to \$83; 8 and 10 lb., \$83 to \$84; in carload lots, f.o.b. mill, with usual extras for less than carloads. Standard Bessemer rails, \$38; open-hearth, \$40, per gross ton, Pittsburgh.

Tin Plate

Effective July 31, prices on all sizes of terne plate were advanced from \$2 to \$2.50 per package. Prices quoted by leading makers are now as follows: 8-lb. coating, 200 lb., \$16 per package; 8-lb. coating, I. C., \$16.30; 12-lb. coating, I. C., \$17.50; 15-lb. coating, I. C., \$18.25; 20-lb. coating, I. C., \$19; 25-lb. coating, I. C., \$20; 30-lb. coating, I. C., \$21; 35-lb. coating, I. C., \$22; 40-lb. coating, I. C., \$23 per package, all f.o.b. Pittsburgh, freight added to point of delivery.

Iron and Steel Bars

Steel bars at 4.50c. to 5c. for delivery late this year, and 2c. and higher from warehouse, in small lots for prompt shipment. Refined iron bars, 4.75c.; railroad test bars, 5.25c. in carload and larger lots f.o.b. mill.

Wrought Pipe

The following discounts on steel are to jobbers for carload lots on the Pittsburgh basing card in effect from May 1, 1917, all full weight, except for LaBelle Iron Works and Wheeling Steel & Iron Co., which quote higher prices, and National Tube Co., which adheres to card of April 1.

Steel			Iron		
Inches	Black	Galv.	Inches	Black	Galv.
$\frac{1}{8}$, $\frac{1}{4}$ and $\frac{3}{8}$	42	15½	$\frac{1}{8}$ and $\frac{1}{4}$	23	+4
$\frac{1}{2}$	46	31½	$\frac{3}{8}$	24	+3
$\frac{3}{4}$ to 3	49	35½	$\frac{1}{2}$	28	10
			$\frac{3}{4}$ to 1½	33	17

Lap Weld

Inches	Black	Galv.	Inches	Black	Galv.
2	42	29½	2	26	12
2½ to 6	45	32½	2½ to 6	28	15
7 to 12	42	28½	7 to 12	25	12
13 and 14	32½	..			
15	30	..			

Butt Weld, extra strong, plain ends

Inches	Black	Galv.	Inches	Black	Galv.
$\frac{1}{8}$, $\frac{1}{4}$ and $\frac{3}{8}$	38	20½	$\frac{1}{8}$, $\frac{1}{4}$ and $\frac{3}{8}$	22	5
$\frac{1}{2}$	43	30½	$\frac{1}{2}$	27	14
$\frac{3}{4}$ to 1½	47	34½	$\frac{3}{4}$ to 1½	33	18
2 to 3	48	35½			

Lap Weld, extra strong, plain ends

Inches	Black	Galv.	Inches	Black	Galv.
2	40	28½	2	27	14
2½ to 4	43	31½	2½ to 4	29	17
4 to 6	42	30½	4½ to 6	28	16
7 to 8	38	24½	7 to 8	20	8
9 to 12	33	19½	9 to 12	15	3

To the large jobbing trade an additional 5 per cent is allowed over the above discounts, which are subject to the usual variation in weight of 5 per cent. Prices for less than carloads are four (4) points lower basing (higher price) than the above discounts on black and 5½ points on galvanized.

On butt and lap weld sizes of black iron pipe, discounts for less than carload lots to jobbers are seven (7) points lower (higher price) than carload lots, and on butt and lap weld galvanized iron pipe are nine (9) points lower (higher price).

Boiler Tubes

Nominal discounts on less than carload lots, freight added to point of delivery, effective from Nov. 1, 1916, on standard charcoal iron tubes, and from April 2, 1917, on lap-welded steel tubes are as follows:

Lap-Welded Steel

Inches	Black	Galv.	Inches	Black	Galv.
1½ and 2 in.	31	28	1½ in.	23	..
2½ in.	28	25	1¾ and 2 in.	35	..
2½ and 2¾ in.	34	31	2¼ in.	32	..
3 and 3½ in.	34	31	2½ and 2¾ in.	38	..
3½ to 4½ in.	34	31	3 and 3½ in.	43	..
5 and 6 in.	33	30	3½ to 4½ in.—No quotations
7 to 13 in.	30	27	5 and 6 in.	37	..
			7 to 13 in.	34	..

Above discounts apply to standard gages and to even gages not more than four gages heavier than standard in standard lengths. Locomotive and steamship special charcoal grades bring higher prices.

1½ in., over 18 ft., and not exceeding 22 ft., 10 per cent net extra.

2 in. and larger, over 22 ft., 10 per cent net extra.

Sheets

Makers' prices for mill shipments on sheets of United States standard gage, in carload and larger lots, are as follows, 30 days net, or 2 per cent discount in 10 days.

[Open-hearth stock, \$5 per ton above these prices.]

Blue Annealed—Bessemer

Nos.	Cents per lb.
Nos. 3 to 8	8.00 to 8.50
Nos. 9 and 10	8.25 to 8.50
Nos. 11 and 12	8.50 to 8.75
Nos. 13 and 14	8.75 to 9.00
Nos. 15 and 16	9.00 to 9.25

Box Annealed, One Pass Cold Rolled—Bessemer

Nos.	Cents per lb.
Nos. 17 to 21	8.30 to 8.80
Nos. 22 and 24	8.35 to 8.85
Nos. 25 and 26	8.40 to 8.90
No. 27	8.45 to 8.95
No. 28	8.50 to 9.00
No. 29	8.55 to 9.05
No. 30	8.65 to 9.15

Galvanized Black Sheet Gage—Bessemer

Nos.	Cents per lb.
Nos. 10 and 11	9.00 to 9.50
Nos. 12 and 14	9.10 to 9.60
Nos. 15 and 16	9.25 to 9.75
Nos. 17 to 21	9.40 to 9.90
Nos. 22 and 24	9.55 to 10.05
Nos. 25 and 26	9.70 to 10.20
No. 27	9.85 to 10.35
No. 28	10.00 to 10.50
No. 29	10.25 to 10.75
No. 30	10.50 to 11.00

Tin-Mill Black Plate—Bessemer

Nos.	Cents per lb.
Nos. 15 and 16	7.80 to 8.30
Nos. 17 to 21	7.85 to 8.35
Nos. 22 to 24	7.90 to 8.40
Nos. 25 to 27	7.95 to 8.45
No. 28	8.00 to 8.50
No. 29	8.05 to 8.55
No. 30	8.05 to 8.55
Nos. 30½ and 31	8.10 to 8.60

Metal Markets

The Week's Prices

Cents Per Pound for Early Delivery							
Copper, New York		Tin.	Lead		Spelter		
Aug.	Lake	Electro-lytic	New York	New York	St. Louis	New York	St. Louis
8.....	28.00	28.00	63.75	11.00	10.87½	8.75	8.50
9.....	28.00	28.00	63.75	11.00	10.87½	8.75	8.50
10.....	28.00	28.00	63.00	11.00	10.87½	8.75	8.50
11.....	28.00	28.00	11.00	10.87½	8.75	8.50
13.....	28.00	28.00	62.50	10.87½	10.75	8.75	8.50
14.....	28.00	28.00	62.25	10.87½	10.75	8.75	8.50

NEW YORK, Aug. 15, 1917.

The metal markets are still harassed by uncertainties as to the future, with particular reference as to the course of the Government price-fixing policy. Copper is quiet and unchanged, with the market almost nominal. There was some activity in tin futures on Monday and fair tonnages changed hands, but during the remainder of the week it has been dull. Lead is extremely dull, but prices remain remarkably firm under the circumstances. Government orders for lead were placed last week at 8c., St. Louis. Spelter is dull and without change. Bids for Government requirements of spelter were opened and contracts are said to have been awarded at 8.75c. and 9c., St. Louis.

Copper.—Trading has been quiet during the week, with prices the same as a week ago. There has been no pressure to sell and consumers have shown no inclination to buy. The uncertainties of the Government price-fixing policy are held solely responsible for the present dullness. The market is almost nominal at 28c. for both Lake and electrolytic. There is naturally a great deal of speculation as to the price which the Government will eventually fix for copper, and 18c. has been talked of during the past few days. It should be understood, however, that this is all guess-work, and there is no official indication yet of what the price will be or how soon any announcement will be made. Some dealers report sales at 25.50c. to 27c. for last quarter. A little spot business at 29c. is reported. London cables yesterday were unchanged at £137 for spot electrolytic and £133 for futures.

Tin.—The price-fixing talk is having a serious effect on tin sales. Consumers will not pay present prices, if there is a likelihood of the Government fixing a lower price. Considerable interest attaches to the talk emanating from Washington that in return for the efforts of this Government to obtain the same prices for the Allies as this Government pays, the Allies must sell to this country and its consumers on a like basis. If such a policy is agreed to by England, it would reduce prices of tin. Trading in tin is made difficult by the delays in receipt of London cables, the censorship on this side added to that on the other side frequently causing a hold-up of several hours. Business for the day is often deferred until the daily cables are received, which is sometimes late in the afternoon. Business was quiet last week, coming to a dead stop on Friday, but on Monday there was more activity for futures and a fair tonnage changed hands. Yesterday the inquiry was lighter and sales correspondingly smaller. There has been a fair demand for off-grades. The quotation yesterday for spot Straits was 62.25c., a decline of 1.50c. during the week. Arrivals of tin from Aug. 1 to 13 were 1810 tons, with 4215 tons from the Straits and United Kingdom afloat.

Lead.—Lead is extremely dull, the lack of demand, as with other metals, being ascribed to the Government price-fixing investigation. Nobody is buying unless he is obliged to, but in spite of the dullness, the market prices were firm up to the end of last week, closing at 11c., New York, and 10.75c., St. Louis. The Government requirements of lead for August, September and October have been allotted to producers according to producing capacity, the total amount bought being 25,000 tons, according to unofficial report. The price paid is said to be 8c., St. Louis. There were indications the fore part of this week that lead might be had at 10.87½c., New York, and 10.75c., St. Louis.

Spelter.—Bids were opened last week by the Zinc Committee of the Council of National Defense for furnishing the 11,500,000 lb. of grade "C" or common spelter the Government requires. It is said that many of the bids were put in at 8.75c., St. Louis, and a smaller number at 9c., St. Louis. The Government intends to maintain secrecy regarding the buying of this lot of spelter and the information we give is not official. It is reported that the Government will place a large part of its requirements at the bid of 8.75c. and the remainder at 9c. Spelter for nearby shipment can be had at 8.50c., St. Louis, which was our quotation a week ago, while for last quarter the price in general about 8.62½c., St. Louis. Some business is said to have been done for next year at a slightly higher price. The fact that the market is higher for futures than for nearby delivery is said to be due to the accumulation of stocks and lack of present demand. A preliminary report on spelter production in the United States in the first six months of 1917, issued by the United States Geological Survey, shows an increase over the last six months of 1916 of 13,000 short tons, to a total of 364,000 short tons.

Antimony.—The market is dull and Chinese and Japanese grades continue to be quoted at 15c. to 15.50c., New York, duty paid.

Aluminum.—The market is unchanged at 50c. to 52c. per lb., New York, for No. 1 virgin metal, 98 to 99 per cent pure.

Old Metals.—The market is a little higher. Dealers' selling prices are nominally as follows:

	Cents per lb.
Copper, heavy and crucible.....	27.00 to 28.00
Copper, heavy and wire.....	26.00 to 27.00
Copper, light and bottoms.....	24.00 to 24.50
Brass, heavy.....	18.50 to 19.50
Brass, light.....	14.00 to 14.75
Heavy machine composition.....	24.75 to 25.25
No. 1 yellow rod brass turnings.....	17.50
No. 1 red brass or composition turnings.....	19.00 to 21.00
Lead, heavy.....	9.25 to 9.375
Lead, tea.....	7.75
Zinc.....	6.75

Chicago

AUG. 13.—Continued quiet in copper has caused prices to decline, but there is, of course, no radical change. For lead there has been a large volume of inquiry, but it resulted in but little buying, consumers holding quite generally to the opinion that prices are unreasonably high. Buying of tin has been of the routine sort. Spelter continues inactive. In antimony there has been a little movement and quotations are stiffer. We quote as follows: Casting copper, 26.75c.; Lake, 29.25c.; electrolytic, 27.50c.; tin, carloads, 63.25c.; small lots, 65c. to 66c.; lead, 10.75c. to 11c.; spelter, 8.37c. to 8.50c.; sheet zinc, 19c.; antimony, 17c. to 18.50c. On old metals we quote buying prices for less than carload lots as follows: Copper wire, crucible shapes, 23c.; copper clips, 22c.; copper bottoms, 21c.; red brass, 21c.; yellow brass, 15c.; lead pipe, 8c.; zinc, 6c.; pewter, No. 1, 35c.; tin foil, 40c.; block tin, 45c.

St. Louis

AUG. 13.—In non-ferrous metals the market has been rather quiet during the week, though firmer prices were looked for. In carload lots the quotations to-day at the close were: Lead, 10.87½c. to 10.92½c.; spelter, 8.50c. In less than carload lots, the figures were: Lead, 11.25c.; spelter, 9.50c.; tin, 68.50c.; electrolytic copper, 30c.; Lake copper, 31.50c.; Asiatic antimony, 18c. In the Joplin district, there was a firmer feeling in the second grade zinc ores, with the basis range \$65 to \$75 per ton for 60 per cent metal. The average for the week in the district was \$70 per ton. Calamine was steady at \$35 to \$42 per ton, basis of 40 per cent metal, with an average for the district for the week of \$39 per ton. Lead was firm at \$110 per ton, basis of 80 per cent metal, and the average for the district was \$109 per ton. In general the demand for all ores was better than the preceding week and for all grades. On miscellaneous scrap metals we quote dealers' prices buying as follows: Light brass, 11.50c.; heavy yellow brass, 13c.; heavy red brass and light copper, 20c.; heavy copper and copper wire, \$23.50; zinc, 5c.; lead, 7c.; tea lead, 6c.; pewter, 25c.; tin foil, 42c.

STEEL-MAKING COSTS

A Brief to the Federal Trade Commission from Lackawanna Steel Co.

The Lackawanna Steel Co. has sent to the Federal Trade Commission at Washington what it designates as a "memorandum regarding cost in relation to the establishment of fair prices for steel plates, bars and shapes under existing conditions." At the outset, a distinction is drawn between selling costs and inventory costs. In calculating the former, everything is included that must be taken out of the selling price before a profit can be earned. In computing inventory costs everything is excluded that cannot with unquestioned propriety be carried as an asset until the goods are sold. It is inventory costs that appear on the books of a corporation but important adjustments of these are necessary before fair selling prices can be fixed.

It is stated that costs have increased rapidly in the steel industry in the past 18 months. In May, 1917, for companies controlling all raw materials the increase was about 50 per cent over the average for 1916 and 25 per cent over costs in January of this year. The Lackawanna Steel Co.'s figures showed an increase of 5.55 per cent in June over May and of 7.36 per cent in July over June.

The argument is elaborate as to labor and material costs under present conditions. It is noted that some of the uncertainty as to results from Government work might be eliminated if the Government would do as Great Britain did in some cases; that is, guarantee to the producer essential raw materials at fixed prices, or purchase such materials on Government account and deliver them to the manufacturer at a fixed price.

In discussing depreciation and depletion the brief argues that the value of ore in the ground at the moment when production begins is clearly capital and the producer should receive its capital value at that time as a part of cost, this principle being recognized in the present income tax law. It is pointed out also that where plants have been constructed at abnormal cost during the war period provision should be made for amortization of the excess of such cost from the normal value. Reference is made to the more intensive use of plant under war conditions, the lower efficiency of employees, the postponement of repairs because operations cannot be suspended, and to other factors growing out of the extraordinary conditions. Emphasis is put upon the consideration that should be given to war taxation in the establishment of prices. In the pre-war period prices of steel were low and the leading steel producers are quite sure to be subject to the maximum tax rate of 50 per cent on excess profits for 1917.

It is suggested that in a business where products are quickly realized the volume of sales annually may be several times the capital invested. In other industries the maximum annual output is substantially less than the capital investment. The disposition to make a percentage addition to cost in fixing the Government prices does not meet the question of the relation between the volume of output and the investment of capital.

In considering variations between costs of similar products in different plants, the memorandum points out that in one case the producer may be a self-contained unit owning adequate ore supplies and blast furnaces as well as steel plants. In another case these different facilities may be owned by corporations which may have the same stockholders but are technically separate entities. In a third case, they may be owned by entirely distinct interests. More frequently steel producers control a part, large or small, of the ore or furnace capacity needed for their requirements and are interested in, but do not entirely own, mining or furnace companies. If the allowance for profit is to be substantially uniform, the prices to be paid must vary widely. Such a method is characterized as economically unsound besides imposing a heavy burden upon the Government as to the verification of cost. The alternative suggested by the memorandum is "the establishment of prices on broader considerations, such prices to be sufficient to

insure some profit to any reasonably efficient producer, leaving cases where it might yield a liberal profit to be adjusted through the operation of the war profits taxation."

Opens Detroit Office

PITTSBURGH, Aug. 15—(By Wire).—On account of its growing business in the Detroit territory, the Phillips Sheet & Tin Plate Co., Weirton, W. Va., has opened an office in room 2032, Dime Savings Bank Building, Detroit, and A. J. Bopp, who has been connected with the strip steel department since its inception, has been appointed district sales manager of the Detroit office. George Damerel, formerly New York sales manager for the American Tube & Stamping Co., has been appointed manager of sales of the strip steel department at the general office of the Phillips Sheet & Tin Plate Co. at Weirton. In addition to a full line of cold-rolled strip steel 16 in. and narrower, the Phillips company is now operating a modern 16-in. hot mill and late this year will have in operation a modern 10 in. hot mill.

Navy's Aircraft Factory

WASHINGTON, Aug. 14.—The construction of an aircraft factory at the League Island Navy Yard at Philadelphia has been authorized by the Secretary of the Navy. Contracts have been placed for the factory on the basis of completion of buildings and beginning of operation in less than 100 days. The total cost of the buildings and plant will be in the neighborhood of \$1,000,000, and it is expected that when the completed plant is working up to its capacity it will utilize the services of approximately 2000 employees and be capable of producing 1000 small planes per annum, or a corresponding output of the larger types.

Inquiry for Foundry Iron

CHICAGO, Aug. 15—(By Wire).—A Racine manufacturer of agricultural implements is inquiring for 1500 tons of foundry iron, 500 for immediate delivery, 500 for first half and 500 for last half of 1918.

A war inventions committee has been created by the Engineering Council as follows: H. W. Buck, consulting engineer, New York; Prof. A. M. Greene, Jr., Rensselaer Polytechnic Institute, Troy, N. Y., and E. B. Kirkby. The committee is to co-operate with the Naval Advisory Board and other departments at Washington, if desired, in the promulgation to engineers of war problems now before the Government.

A course of 15 lectures on international trade is to be given to the employees of the Vulcan Steel Products Co., 120 Broadway, New York, by Dr. Roy P. MacElwee, head of the department of physics of the College of the City of New York. An additional course dealing with the iron and steel industry in detail is to follow the course given by Dr. MacElwee.

A chart on resuscitation from gas asphyxiation, drowning and electric shock has been prepared by the Bureau of Mines, Washington, D. C. It is suitable for posting, as in industrial establishments. Copies will be sent free of charge on request as long as the edition remains in stock.

The Public Service Commission of Pennsylvania has issued notices that the railroad companies of the State would file within a few days "revised rates on manufactured iron and steel, billets and pig iron, to become effective about Aug. 20."

The Minnesota Steel Co., Duluth, Minn., will build a \$500,000 benzol-recovery plant. Construction will be rushed with a view to operation by next winter.

The city of Dayton, Ohio, will purchase a coal conveyor and a coal crusher to be installed at the waterworks.

PERSONAL

M. A. Neeland was chosen this week as president of the New York Shipbuilding Co. He recently returned from a mission to Russia for the American International Corporation. The latter company acquired last year an important interest in the New York Shipbuilding Co., whose yards are at Camden, N. J. Mr. Neeland succeeds S. M. Knox, who was elected chairman of the board of directors.

Gilbert L. Robinson, assistant manager of the steel department of Gaston, Williams & Wigmore, Inc., returned Aug. 8 after a seven months' trip abroad, where he visited the company's offices at Rome, Lisbon, Madrid and Paris, covering also Naples, Genoa, Turin and Milan in Italy, Bordeaux and Marseilles in France and Barcelona and Bilbao in Spain.

Ami L. Bouet sailed for Hong Kong from Vancouver on Aug. 2 in the interest of the Vulcan Steel Products Co., to establish an organization to care for the steel, machinery, automobile and other business of the company.

Robert G. Cook, production engineer Remington Arms & Ammunition Co., Bridgeport, Conn., has received a commission in the officers reserve corps as a first lieutenant, ordnance division.

De Barros Moreira, formerly general representative in Brazil of the United States Steel Products Co., has been appointed agency division manager of the Vulcan Steel Products Co. of 120 Broadway, New York. Mr. Moreira was a member of the Pan-American Conference in 1910, a delegate to the International Chamber of Commerce and a former president of the American Manufacturers' Export Association.

W. Stewart Horner, president of the National Association of Sheet and Tin Plate Manufacturers, Pittsburgh, and also chairman of the sub-committee on sheet steel, is spending his vacation in Canada, and expects to return to Pittsburgh about Sept. 15.

William Whigham, first vice-president and chief engineer of Carnegie Steel Co., Pittsburgh, is spending his vacation in Canada.

N. P. Hyndman, sales agent of the Washington Coal & Coke Co., Pittsburgh, has returned from a month's vacation spent in California.

E. G. Irwin, manager of the Cincinnati office of the Asbestos Protected Metal Co., Pittsburgh, has joined the Ohio National Guard, and this office has been closed temporarily. P. J. Young, chief engineer of the same company, has received a commission as First Lieutenant of Engineers, and is now in the service of his country under secret orders.

Major Bradley Dewey of the research department of the American Sheet & Tin Plate Co., Pittsburgh, who has been in the Government medical supply department at Washington, D. C., for some time, has been removed to the same department at New York to superintend the manufacture, purchase and inspection of gas masks and other defensive apparatus.

P. B. Shook, for some years with the Valley Investment Co., Youngstown, Ohio, has resigned to accept a position with the Semet-Solvay Co., Syracuse, N. Y.

Frank I. Ellis has recently opened offices at 2126 Farmers' Bank Building, Pittsburgh, as general contracting engineer. Mr. Ellis had charge of the designing, building and putting in operation of the new pipe mills of the Jones & Laughlin Steel Co. at Aliquippa, Pa. He was also chief engineer for 12 years of the United Engineering & Foundry Co., Pittsburgh, and later was general manager of the pipe mills of the Mark Mfg. Co. at Zanesville, Ohio.

Arthur C. Hubbard, purchasing agent for the Andrews Steel Co. and Newport Rolling Mill Co., Newport, Ky., has resigned to accept the position of treasurer of the Charleston Alloys Steel Co., Belle, W. Va. Mr. Hubbard has been connected with the Newport companies 26 years.

F. J. Page has been appointed representative in the Pittsburgh district of the Whiting Foundry Equipment Co., Harvey, Ill. Mr. Page, who has been in the employ of the company for many years, working in both the estimating and sales departments of the home office, will have offices at 411 Fulton Building, Pittsburgh.

Frederic Schreiber, a Belgian graduated from the University of Liege, and practising some years in this country as a consulting management engineer, has, by court decree, had his name changed to Frederic Meron.

Frederick H. Koch has been appointed district representative of the Heppenstall Forge & Knife Co. of Pittsburgh, with offices at 501 First National Bank Building, Milwaukee.

Harry G. Seltzer has been appointed assistant sales manager for T. A. Willson & Co., Inc., and is devoting his activities to the Willson goggle interests. When diplomatic relations with Germany were severed, he quit his post as United States consul in Breslau and became foreign trade advisor to the State Department.

George B. North has been appointed general sales manager of the Hazard Mfg. Co., Wilkes-Barre, Pa. He will have offices at 533 Canal St., New York.

The American Steel Export Co., New York, announces the appointment of Walter R. Morris as assistant traffic manager with headquarters in the Woolworth Building. Because of suspended service for an indefinite period of American-Hawaiian steamers via Panama Canal, Mr. Morris resigned his position as assistant traffic manager of the American-Hawaiian Steamship Co., New York, to accept employment with the American Steel Export Co.

M. V. Dryespool, formerly New York representative of the Phoenix Iron Co., Phoenixville, Pa., has been appointed sales manager of the North American and British Isles department of the iron and steel division of the Vulcan Steel Products Co., 120 Broadway, New York. Mr. Dryespool was for five years connected in the purchasing department of the Central Georgian Railroad in Savannah, Ga., and the New York Central Railroad in New York.

Ray L. Baker, who for the past five years has been power sales engineer with the Commonwealth Edison Co., Chicago, has severed his connection with that company to become manager of the steam and electrical department of the Railway and Mine Supply Co., 332 S. Michigan Ave., Chicago, dealer in mining supplies and used steam and electrical machinery.

Stewart C. Coy, formerly assistant superintendent of the electrical department of the Youngstown Sheet & Tube Co., Youngstown, Ohio, has resigned to become general superintendent of the Celluloid Co. of America, operating a plant at Newark, N. J. His successor has not yet been appointed. Upon his departure from Youngstown Mr. Coy was presented with a diamond ring by his former associates in the company.

L. S. Henley, an electrical engineer for the Cornwall Ore Banks Co., has accepted a position with the Westinghouse Electric & Mfg. Co. at Philadelphia. He has been succeeded by Manford Daugherty, of Lebanon. Harry Hollis, electrical engineer for the Reading Transit Co. at Lebanon, has accepted a position with the local plant of the Bethlehem Steel Co. Mr. Daugherty was formerly his assistant.

Willard K. Smith, of the Chicago sales office of the Bethlehem Steel Co., has been commissioned in the Officers' Reserve Corps and has been assigned to active duty under the Chief of Ordnance at Washington.

James Albert Green, president of the Mathew Addy Co., Cincinnati, is in Canada on a midsummer vacation.

Benjamin Lissberger of B. Lissberger & Co., manufacturers, smelters and dealers in metals, with general offices in the Woolworth Building, New York, has been elected vice-president and a director of the Page Woven Wire Fence Co. of Monessen, Pa., and Adrian, Mich.

P. M. Kling has resigned as consulting engineer of the Laconia Car Co., Laconia, N. H., to take a rest. He

has been identified for 34 years with the car building industry.

Theodore Swann, sales manager of the Alabama Power Co. for the past three years, has resigned to become president and general manager of the Southern Manganese Corporation. This company is operating six electric furnaces in the production of ferromanganese at Anniston, Ala. Its offices are at Birmingham, Ala.

E. W. Mudge of Edmund W. Mudge Co., Frick Building, Pittsburgh, has gone to Canada on a hunting and fishing trip, to remain until about Sept. 10.

OBITUARY

ALFRED J. ORMSTON, JR., superintendent of motive power, at the Aliquippa, Pa., plant of the Jones & Laughlin Steel Co., Pittsburgh, died recently in the South Side hospital, Pittsburgh, from injuries received while at work. Mr. Ormston was formerly instructor in mechanical engineering in the Carnegie Institute of Technology.

P. H. BLODGETT, chief of the order department in the New York office of the National Tube Co., died Tuesday morning, Aug. 14.

Pittsburgh and Nearby Districts

The Pittsburgh Rolls Corporation, which recently took over the Phoenix Roll Works of the Seaman-Sleeth Co., Pittsburgh, plans to make some large additions and changes to the plant, and has retained Barton R. Shover, Oliver Building, Pittsburgh, as consulting engineer for the work. The first heat in the new 25-ton open hearth furnace recently built was made on Thursday, Aug. 9.

The Kirk Supply Co., Pittsburgh, has been appointed agent for the Sterling Wheelbarrow Co., Milwaukee, in the Cleveland district. The company has opened an office and warehouse at 422 Frankfort Ave., Cleveland. The Kirk Co. has represented the Sterling company in Pittsburgh for years.

Edgar E. Brosius, contracting engineer, Pittsburgh, is installing the Brosius automatic mud gun for stopping the tapping hole on blast furnaces of the Bethlehem Steel Co., Lackawanna Steel Co. and Mark Mfg. Co. The advantages claimed for the gun are increased output of pig iron, less skilled labor required to operate the equipment, and the important factor of safety, as no one is near the gun when the tap hole is stopped.

The strike at the plant of the Blaw-Knox Co., at Wheatland, Pa., has been settled, the company giving its men a slight increase in wages. The men demanded an 8-hr. day, but returned to work on the basis of 10-hr. per day, the same as before.

The Pittsburgh Mining Machinery Co., Pittsburgh, has been incorporated with a capital of \$100,000 by T. H. Edelblute and others.

The annual meeting of stockholders of the United States Glass Co. will be held in Pittsburgh, Wednesday, Aug. 29.

The July payroll of all the leading industrial plants in the Youngstown, Ohio, district is given as \$5,253,626, a slight decrease over June, which was about \$300,000 higher.

Two men were killed and others seriously injured in an explosion in the galvanizing department last week in the Etna Iron & Tube Works of the Spang-Chalfant Co., Pittsburgh.

The latest locomotives built at Crewe, England, are finished in the "all-black" style adopted as a war time finish, considerable economy being effected by dispensing with lining out and other decorative work. The engines present a striking appearance in this garb.

PRIORITY BILL PASSED

President Given Important Power in Regard to Shipments

WASHINGTON, Aug. 14.—After a stormy passage through House and Senate, the bill authorizing the President to direct shipments in interstate commerce and to grant priority to those related to the conduct of the war became a law Aug. 10 and will immediately be put into effect through the medium of a new bureau of the Department of Commerce. The powers conferred upon the President are exceedingly broad and to a very substantial degree the provisions of the interstate commerce laws are suspended during the period of the war.

The bill authorizes the President, whenever in his judgment such action is necessary to the public security and defense, to "direct that certain kinds of traffic or particular shipments, as may be determined by him, shall have preference or priority in transportation by any common carriers by railroad or water, under such arrangements, rules and regulations as may be prescribed." Such directions may be modified, suspended or revoked whenever necessary. All common carriers are required to establish and maintain in Washington during the period of the war an agency in the form of a committee of railroad officers fully empowered to receive on behalf of the carriers notice and service of such orders and directions as the President may give and to arrange for the prompt compliance therewith. Failure promptly to execute orders issued by the President will render the offending officer, agent or employee of the carriers liable to heavy fine or imprisonment.

An important provision of the bill authorizes the President to enter into pooling agreements with two or more carriers looking to a proper division of earnings for a specified time and upon prescribed kinds of traffic. For the transportation of persons or property in accordance with orders of the President, the lawfully established tariffs will apply, while for the transportation of troops "reasonable rates" will be fixed by the Interstate Commerce Commission. Carriers are protected from legal actions brought by shippers who may suffer as the result of preference given to the Government.

Imports and Exports of Ferroalloys

Below are given the statistics of the imports of ferroalloys and special metals and ores into the United States in June and in the fiscal year ending with June, together with exports for the same periods and a comparison with the preceding year:

	Imports (Gross Tons)		Fiscal Year—	
	June	1917	1916	1917
	1916	1917	a	
Ferromanganese	a	3,817	a	73,741
Ferrosilicon	536	869	5,469	8,715
Manganese oxide and ore of	58,143	62,778	492,860	656,088
Nickel ore and matte	7,848	3,503	87,700	33,053
Tungsten bearing ore	a	343	a	3,823
Exports				
Ferrotungsten and tungsten metal (pounds)	a	172,079	a	1,784,306
Ferrovandium (tons)	60	91	497	1,168
Nickel, nickel oxide and matte (tons)	1,022	804	11,451	13,842

a Not separately reported.

The Lau Iron Works Co., recently incorporated at Youngstown, Ohio, with a capital of \$350,000, has elected officers as follows A. W. Lau, president and general manager; John R. Rowland, vice-president; Ward Beecher, secretary and treasurer, and M. E. McAndrews, assistant secretary-treasurer. This new company has taken over the former business of A. W. Lau, and will fabricate structural and decorative iron and steel.

The Mechanical Refrigerator Co. has been organized at Youngstown, Ohio, with a capital of \$300,000, and proposes to manufacture mechanical refrigerator devices to be driven by electricity. S. Gillespie is patentee of the process, which is said to be of such a nature that the use of ice for refrigeration is entirely eliminated.

Government Contracting System Adopted

Straight Purchase-and-Sale Contracts at Fixed Prices Except Where Impracticable—Stipulations Governing These and Cost-Plus-Profit Contracts

WASHINGTON, Aug. 14.—A comprehensive system for the letting of Government contracts for the purchase of goods or for construction has been adopted by the Interdepartmental Cost Conference. The recommendations have been made public and will probably be accepted almost immediately by the War Industries Board and all the executive departments. The conference was organized by Secretary Redfield and Burwell S. Cutler, acting chief of the Bureau of Foreign and Domestic Commerce. Representatives of the most interested governmental bodies, including the War and Navy Departments, the Federal Trade Commission, the Council of National Defense, and the War Industries Board, took part in the meetings, which were also attended by men prominent in various lines of industry.

The conference strongly recommends the straight purchase-and-sale contract at fixed prices wherever practicable in preference to the cost-plus-profit contract which the Government has recently used in cases where it was not practicable to secure an upset price. The experience of the British Government, which has discarded the cost-plus-profit plan, has had considerable influence with the conference, but the results secured in the purchase of war materials on the two plans have demonstrated the superiority of the purchase-and-sale contract wherever that plan is practicable. The recommendations of the conference are as follows:

I. Where fair terms can be obtained, contracts should be in the form of straight purchase-and-sale contracts at fixed prices.

In the determination of "fair terms" the contractor, in so far as possible, should be required to state the cost and other factors upon which his price is based; such representations to be the subject of investigation by the contracting officer prior to the final execution of the contract, and if found to be incorrect, the price to be adjusted accordingly.

What constitutes "fair terms" can be arrived at only by consideration of many factors, such as:

The quality and quantity of the articles purchased.

Whether or not the plant is adaptable to business other than war business.

The duration of the job and the length of time the contractor's plant and capital will be tied up. Also the amount of capital tied up in comparison with the particular output contracted for.

The possibility of fluctuations in material and labor costs with attendant risk to the contractor.

Loss in commercial business by taking Government work, which must be given precedence; disarrangement in plant organization and labor conditions.

Comparison with prices of other manufacturers, competitive bidding, etc.

The prosperity of the trade and of the particular contractor.

In certain instances where the article is standard, ordered in bulk, delivered promptly, a profit amounting to 10 per cent of costs is unreasonably high. In other instances where the quality of the job is high, the quantity small, or where the job ties up the contractor's plant and capital for a long period of time, or where the material and labor risk is considerable, or for other similar reasons, such 10 per cent profit may well be unreasonably low.

Again, in agreeing upon "fair terms," the following factors should be considered, any or all of which greatly aid the contractor and should tend to lower the price.

United States to supply material or component parts.

United States to readjust price in the event of fluctuations in price of material or component parts resulting in increased costs.

United States to readjust price in the event of labor disputes resulting in increased labor costs.

United States to make frequent payments to reimburse the contractor for expenditures for material, component parts, or the like.

To skimp fair terms will inevitably tend to cause contractors to lose interest in production and disturb general business conditions. Fair terms can only be determined by consideration of these general principles as well as the special factors indicated above that may apply to the particular production contracted for.

II. A standard form of straight purchase-and-sale contract at a fixed price should be adopted for use wherever practicable.

It should contain clauses which will deal with the following subjects:

Method of delivery: storage of production; shipment to point designated.

United States to pay for raw material when delivered to contractor.

United States to have the right itself to supply material and component parts.

United States to adjust price on increased material costs above estimated costs.

United States to adjust price on increase in labor costs.

Liquidated damages.

War clause termination.

When Cost-Plus Contracts May Be Necessary

Although a straight purchase-and-sale contract for a fixed price adjusted as indicated is greatly to be preferred, nevertheless in numerous instances the United States will be obliged to obtain production by paying for the entire cost of the same and in addition a fair profit to the contractor. Such cost-plus contract may be necessary under the following conditions:

Where the production is novel and the contractor has had no past experience upon which to base a price; for example, steel helmets, large calibre guns and shells for same, aeroplane motors, and the like.

Where the production involves difficult and complicated manufacturing effort subject to changing plans and specifications, or wide fluctuations in material costs; for example, steel and wooden ships, aeroplanes, optical glasswork, and the like.

Where the contractor, though deserving of confidence, lacks sufficient working capital and plant equipment to carry through the job.

Engineering or building jobs for which the cost-plus contract has for many years been standard.

It must be borne in mind that a cost-plus contract establishes a relation of trust between the United States and the contractor, in which the contractor is legally responsible at all times to work in the interest of the United States and receive no profit beyond that definitely specified in his contract. For all excessive costs, hidden profits in the form of depreciation, overhead, discounts and the like, the United States may refuse to pay, or if the contractor has thereby profited may sue and recover. Practically, however, the interests of the United States and the contractor are inevitably opposed if the profit is based upon a percentage of cost. The temptation is great to the contractor to inflate his own costs, as well as the costs of subcontractors, and the task of the United States is difficult and burdensome in checking and determining proper costs.

III. In cost-plus contracts a fixed profit of a definite sum of money per article should be agreed upon instead of a percentage of cost.

Such fixed profit can be arrived at by taking a percentage, say 10 per cent, of the estimated cost of each article or the entire job. In instances where estimates of cost are impracticable it becomes of paramount importance to choose a contractor in whose integrity the United States may have the fullest confidence. Where a fairly close estimate can be made of the cost of the article or job, upon the completion of the contract, the

actual cost can be checked against the agreed estimate and the contractor permitted to share in the saving, or be charged with part of the excess of cost, depending upon the outcome. Such an arrangement stimulates the contractor to save costs and time, because the two go together. This cost-plus adjustable fixed-profit contract unquestionably affords the Government the greatest protection in cost-plus contracts. Great care should be used in fixing the estimated price, which, if too high, may result in giving the contractor a profit entirely undeserved.

IV. In cost-plus contracts the fixed profit agreed on should be subject to adjustment, so that the contractor may share in the saving of, or be charged with part of the excess of, actual cost over estimated cost.

In some instances the contractor may agree to pay for all excess over a certain named figure of cost, and the advantage to the United States in such an arrangement is too obvious for comment.

Determining Indirect Charges

In the determination of costs, direct labor and direct material are easily ascertainable; it is the indirect charges to the job, overhead and depreciation, that present difficulties. To contract to pay a proper charge for overhead and depreciation leaves the door wide open for endless discussion, and it is suggested that wherever possible the amount of these items be tentatively fixed in advance, based on definite representations of the contractor as to the amount of fixed capital assets to be depreciated and the estimated overhead. Such amounts should always be subject to revision in case such representations prove to be incorrect. This puts it up to the contractor to make an honest representation and provides ample opportunity to check the same.

It is of the utmost importance that standardized forms of contract as well as standardized methods of determining costs be applied to this class of contracts. Such standardization will produce clarity in the relation between the contractor and the United States and will fix precedents of construction for certain clauses and terms. Standardization will also afford great protection to the United States, not alone presently in determining points of difference, but also in Court of Claims suits that may arise.

V. A standard form of cost-plus contract should be adopted for use wherever practicable.

As conditions necessitate changes, the form of such standard contract can be changed to suit.

W. L. C.

Cleveland Company's Expansion

The Standard Steel Castings Co. of Cleveland, incorporated in 1912 for \$125,000, has just increased its capital stock to \$1,000,000. Its foundry is at present located on West Seventy-third Street and the Big Four Railroad, and has an output of 350 tons of steel castings per month, which will be doubled before the end of the year. This tonnage includes miscellaneous and automobile castings weighing less than 200 lb. each. The company is at present building on the East Side of Cleveland a new foundry and machine shop which will be devoted exclusively to the manufacture and production of cast steel truck wheels. This installation will cost approximately \$350,000, and the melting equipment will include two 3-ton electric furnaces and three 2-ton converters. The output of the new foundry will be 400 machined wheels per day, or 1300 tons per month, giving a combined tonnage of 2000 tons per month for both plants.

The officers of the company are: Julius F. Janes, president; Edwin H. Janes, vice-president and treasurer; William R. McDonough, secretary and general manager. The directors, in addition to the officers, are E. W. Moore, P. J. Morgan, M. C. Rosenfeld, R. M. Calfee, J. G. Fogg and B. C. Tucker.

Vesta furnace at Watts, Pa., recently acquired by E. J. Lavino & Co., has been blown in on foundry iron and a little later will be turned on to the manufacture of ferromanganese.

Boiler Economy with Peat Fuel

Peat fuel, under favorable condition, can be economically utilized for the production of power through the media of the steam generator and steam engine, according to B. F. Haanel, chief engineer Division of Fuel and Fuel Testing, Department of Mines, Canada. He bases his claim on results of tests to determine the value of peat fuel for the generation of steam. They are described in Bulletin 17 by John Blizzard, Department of Mines, Canada.

The cost of the peat fuel delivered to the power plant, he explains, must be less than that of a quantity of good steam coal equivalent in heating value, in order to permit of its competition, as peat is much bulkier than coal possessing equivalent heating value, and its storage in sufficient quantity to permit the continuous operation of a power plant is a difficult problem; also the handling of large quantities of peat fuel involves problems of a more or less serious nature. On the other hand, he points out that peat fuel burns freely to a fine, easily handled ash, permitting of its almost complete combustion, so that the cost of handling the ash can be reduced to a minimum. Generally, Dr. Haanel believes that peat fuel for steam raising cannot compete with good steam coal costing \$5 or less a ton, but as the price of coal increases, peat fuel for steam generation, wherever large deposits of peat suitable for fuel purposes are available, will become a serious competitor of coal.

Peat for Making Combustible Gas

Economy and efficiency, however, are the keynote of these modern times and in the future, in his opinion, it is hardly likely that any form of fuel will be utilized for steam generation for the production of power unless steam is indispensable to the carrying out of some chemical process, or other industry, and he believes that so far as the generation of power is concerned, the more economical method to employ is the conversion of the peat fuel into a combustible gas which can, in this form, be burned in a gas engine or used for the different heating furnaces in metallurgical works.

Many of the peats so far examined in Canada, it appears, have a very high nitrogen content, which can be recovered in the form of ammonia when the peat is burned in a by-product recovery producer and, in this manner, many of the peat bogs may become the source of one of the most valuable artificial fertilizers, ammonium sulphate.

The tests described in the bulletin comprise a series of seven; four of which were carried out on a marine type Babcock & Wilcox water-tube boiler, and three on an internally fired boiler of the portable locomotive type. One of the tests on the water-tube boiler was for the purpose of obtaining complete flue gas analysis, the remainder being run to determine the economy of operation. The peat was hand fired and was said to be of excellent quality, containing only a small percentage of dust and from 16 to 20 per cent moisture. A summary of the results obtained from six tests as outlined in the bulletin is as follows:

Summary of Boiler Tests Using Peat

No. of Trial	Water-tube Boiler			Fire-tube Boiler		
	71	72	73	83	84	85
Moisture per cent in peat.	15.7	15.7	20.3	19.2	20.1	19.2
Net calorific value of fuel as fired, B.t.u. per lb.	7,490	7,490	6,990	7,130	6,970	7,110
Peat fired per hour, lb.	476	586	569	160	214	341
Peat fired per square foot of grate surface per hour, lb.	20.5	15.5	15.0	17.7	23.8	37.9
Equivalent evaporation per hour from and at 212 deg. Fahr., lb.	1,950	2,322	2,250	621	802	1,054
Equivalent evaporation per hour per square foot of heating surface, lb.	2.88	3.43	3.32	2.89	3.73	4.9
Pounds of dry flue gas per pound of peat.	12.4	9.8	11.1	9.8	9.1	6.5
Temperature in flue leaving boiler, deg. Fahr.	720	760	715	690	690	750
Equivalent evaporation from and at 212 deg. Fahr. per lb. of peat as fired, lb.	4.10	3.96	3.95	3.89	3.74	3.09
Thermal efficiency of boiler furnace and grate, based on the net calorific value, per cent.	53.1	51.3	54.8	52.9	52.1	42.2

Machinery Markets and News of the Works

WAR BUYING TREMENDOUS

Demand for Machinery from Many Sources

Ordnance, Munitions, Airplane, Shipbuilding and Tractor Plants Are Buying on Large Scale—New Government Ordnance Works

The Government's efforts to increase the ordnance production of the country have resulted in the organization of another new company to forge big guns, the Tacony Ordnance Corporation having been started by the Tacony Steel Co., Tacony, Pa., and will erect at once a \$1,500,000 plant, including forge shop and machine shop. Purchases of equipment will be made through the War Department. It is understood that the Bullard Machine Tool Co., Bridgeport, Conn., will go ahead with its proposed gun plant. The Symington-Anderson Co., Rochester, N. Y., which recently bought about \$1,000,000 worth of equipment, is building a gun plant at Rochester. Similar plants are under way for the Wisconsin Gun Co., Milwaukee, Wis., the Northwestern Ordnance Co., Madison, Wis., and the Root & Van Dervoort Engine Co., East Moline, Ill., these three latter concerns having been buying equipment in Chicago and Milwaukee. The Inland Ordnance Co., organized by the McMyler-Interstate Co., Cleveland, will presumably buy in that market. Nothing more definite has been learned regarding the gun plants which the Niles-Bement-Pond Co. and the Otis Elevator Co. are expected to provide. The American Brake Shoe & Foundry Co., Erie, Pa., which bought more than 200 new machine tools recently, has taken a Government order for 3000 6-in. guns. The order of the Colts Patent Firearms Mfg. Co., Hartford, Conn., mentioned last week, is for 20,000 Browning machine guns. The value of the contract is about \$15,000,000. The Linderman Steel & Machine Co., Muskegon, Mich., has completed new buildings for the manufacture of gun mounts and projectiles for the Government. Contracts for projectiles are reported to have been awarded to the Bethlehem Steel Co., the Tredegar Co., Richmond, Va., and the W. J. Oliver Mfg. Co., Knoxville, Tenn.

A large Government shipbuilding contract, about which little definite information is to be had, has been taken jointly by the Liberty Steel Products Co. and the Foundation Co., both of the Woolworth Building, New York. The Foundation Co. will build the ships while engines, boilers and similar equipment will be furnished by the Liberty Steel Products Co. A large number of mine sweepers are said to be included in the contract. The Foundation Co. has issued an inquiry for about \$100,000 worth of plate shop machinery. Lists of machine-shop tools and cranes will soon be sent out. The Federal Shipbuilding Co. is receiving bids on about \$1,000,000 worth of plate and angle shop machinery and will soon inquire for machine shop tools and yard and shop cranes. The Chester Shipbuilding

Co. has been reorganized and the yard which this company recently acquired at Bristol, Pa., has been taken over by the Merchants Shipbuilding Corporation, a new affiliated company, having the same officers. Considerable new equipment will soon be purchased for the Bristol plant, where 12 shipways are being constructed. The Newburgh Shipyards, Inc., Newburgh, N. Y., is making purchases and the American U-Boat & Arms Corporation, which is equipping a yard at City Island, N. Y., for steel and composite ships, expects to close soon on a list recently sent out. The Downey Shipbuilding Corporation, New York, has been making inquiries for a few new tools. The Imperial Japanese Navy, through Commander Godo, its representative here, and Mitsui & Co., has placed orders for about \$250,000 worth of shipyard machinery. Government contracts, which are being given out in Washington by the Emergency Fleet Corporation, will doubtless cause a revival of inquiry for large quantities of shipyard equipment. Many of the concerns which inquired a few months ago will find prices advanced 20 to 25 per cent when they again come into the market.

The Curtiss Aeroplane & Motors Corporation has awarded a blanket contract to Manning, Maxwell & Moore, Inc., New York, for equipment and supplies for its new plant now being erected in Buffalo. The Aero Marine Plane & Motor Co., Keyport, N. J., is inquiring for some machines and is expected to engage in airplane engine manufacture for the Government or on a sub-contract. The Trego Motor Co., Fair Haven, Conn., is understood to be making parts for airplane engines. Henry M. Leland, who is equipping a plant in Detroit for making airplane engines, is reported to have a Government contract for 10,000, with deliveries to end about September, 1918. The Hall-Scott Motor Car Co., San Francisco, is co-operating with the Nordyke-Maron Co., Indianapolis, in the manufacture of 1000 airplane engines for training machines. The Dayton-Wright Aeroplane Co., Dayton, Ohio, has placed a large order for sensitive drilling machines in Cincinnati.

Conditions among the automobile factories are said to be more satisfactory now that many of them are engaged on motor trucks, airplane engines or tractor parts. The Olds Motor Works, Lansing, Mich., will, it is understood, triple its output and will need equipment. The Smith Motor Truck Co., Chicago, has received a Government contract for 72 light trucks and the Reo Motor Car Co., Lansing, Mich., will furnish the same number. The Reading Standard Co., Reading, Pa., is inquiring in the New York market for machine tools and will make motorcycles for the Government. Several automobile plants are making machine tools for machine-tool concerns.

Buying for tractor companies continues on a large scale. Henry Ford & Son will build an addition at the Dearborn, Mich., plant to provide 7000 tractors for the British Isles by next January. Completion of the Ford tractor plant at Cork, Ireland, which was to have taken care of this tractor order, has been delayed until next summer. The Holley Bros. Co., Detroit, which

was building a plant at Coventry, England, for making kerosene vaporizers for Ford tractors, will not be able to complete its plant on time, and the vaporizers will be manufactured in Detroit. The Convertible Tractor Co. has completed a new plant in St. Paul, Minn., and will make tractor attachments for Ford cars. The Hackney Mfg. Co., St. Paul, has been reorganized and will purchase entirely new equipment soon for building tractors. The Enterprise Machinery Co., St. Paul, is building a new factory and will be in the market soon for equipment. The Phoenix Mfg. Co., Eau Claire, Wis., may build caterpillar tractors for the Government and will need new equipment. The La Crosse Tractor Co., La Crosse, Wis., is building a new factory and will inquire for equipment soon. New plants to be built by the Toro Motor Co., Minneapolis, and the Whitman Agricultural Co., St. Louis, have been previously recorded. The General Motors Co. has been buying additional equipment for its tractor plant at Stockton, Cal.

Crane business is still active. The Newport News Shipbuilding & Dry Dock Co. has closed for 11 cranes with the Milwaukee Electric Crane & Mfg. Co. The Midvale Steel Co. has bought two 60-ton cranes.

New York

NEW YORK, Aug. 14.

Machine-tool concerns are increasing their output whenever possible by "farming out" work to provide equipment for the new plants which are aiding in the war. Automobile factories affected by the slump in demand for pleasure cars, are making machine tools, some having taken large contracts.

There is a tremendous demand for machinery and tools, coming largely from makers of ordnance, munitions, ships, airplanes and tractors. The new ordnance plants will require a great deal of equipment. At the request of the Government the Tacony Steel Co., formerly the Philadelphia Steel & Forge Co., Tacony, Pa., has organized the Tacony Ordnance Corporation and will build a plant at Tacony to make big guns for the United States Army. It is understood that the Bullard Machine Tool Co., Bridgeport, Conn., will go ahead with its plans to construct a similar plant at Bridgeport, though no definite announcement has yet been made. Announcements are expected soon with regard to the plans of the Otis Elevator Co. and the Niles-Bement-Pond Co. to assist the Government along the same line. The American Brake Shoe & Foundry Co., which recently placed orders for a large quantity of equipment, has received a contract from the Government for 3000 6-in. guns, which will be built at Erie, Pa., in a special plant. The Symington-Anderson Co., Rochester, N. Y., which also bought equipment recently, is now erecting a plant in Rochester, where 4000 guns will be made. The order received by the Colts Patent Firearms Mfg. Co., Hartford, Conn., referred to in this column last week, consists of 20,000 Browning machine guns, which will cost the Government about \$15,000,000.

The Bethlehem Steel Co., Bethlehem, Pa., the Tredegar Co., Richmond, Va., and the W. J. Oliver Mfg. Co., Knoxville, Tenn., are reported to have obtained contracts for projectiles from the Government.

A large number of shipbuilding contracts have been given out by the Emergency Fleet Corporation, as is noted elsewhere in this issue, and there will undoubtedly be a revival of inquiry this week for machinery and tools. Concerns which received bids two or three months ago will, upon renewing their inquiries, find that cost of the equipment they need has risen from 20 to 25 per cent. The Federal Shipbuilding Co., New York, is receiving bids on about \$1,000,000 worth of plate and angle shop machinery, and will soon issue an additional list of machine shop tools and cranes. The Liberty Steel Products Co. and the Foundation Co., both in the Woolworth Building, New York, will jointly execute a Government contract for a large number of ships, including many mine sweepers. The Foundation Co. has sent out a list of plate shop machinery required for its yard and will soon supplement this with other lists of machine shop tools, cranes, etc. The Newburgh Shipyard, Inc., have been buying during the week. The Downey

Shipbuilding Corporation has been inquiring for a few tools. The Chester Shipbuilding Co., Chester, Pa., has been reorganized and the Bristol, Pa., plant will be conducted hereafter by the Merchants' Shipbuilding Corporation, a new organization. These concerns have the same officers and are backed by W. A. Harriman. The Merchants' Shipbuilding Corporation is reported to have obtained a Government contract for 20 or more ships and will be in the market for shop and yard equipment, including cranes. The latter concern will erect 12 shipways at the Bristol plant. The American U-Boat & Arms Corporation, 21 Park Row, New York, is building a shipyard for steel and composite ships at City Island, N. Y., and will need cranes and shop equipment. Purchases will be made as soon as a Government contract is received.

Commander Godo of the Imperial Japanese Navy has closed for about \$250,000 worth of machine tools for shipment to Japan. Orders were placed through Mitsui & Co., A. R. Brown, McFarlane & Co., Ltd., 120 Broadway, New York, are in the market for the following equipment for shipment to Japan:

Turbine lathes, height of center, 42 in.; distance between centers, 30 ft.

Shaft lathes, height of center, 24 in.; length of table, 30 ft.

Planing machine, 3 x 3 x 24 ft.

Horizontal boring and surfacing machine, diameter of spindle, 4½ in.

Horizontal boring, facing and milling machine, diameter of spindle, 3 in.

Full universal drilling machine, radius, 5 ft. 10 in.; the diameter of holes drilled, 3 in.

Hydraulic riveter, gap, 10 ft., 12 ft.; power, 100 tons, 120 tons.

Multiple drilling machine, having 6 drills and capable of drilling tube plates of water tube boilers.

Vertical milling machine, 34 x 13½ x 23½ in., 62 x 38 x 28 in.

Gear hobbing machine, to be suitable for finishing gear wheels of turbines.

Hydraulic press, 1500-ton, 2000-ton, 2500-ton.

Steam hammer, 5-ton.

Dry galvanizing plant.

Lift elevator, capable of lifting 1 ton.

Air compressor, capable of compressing free air of 1200 cu. ft.

Blue-printing machine, 4 ft. wide; length, as long as possible.

Round saws of more than 30 in. diameter, for cutting metals.

Pyrometer.

Manning, Maxwell & Moore, Inc., have taken a blanket order for equipment and supplies for the new plant of the Curtiss Aeroplane & Motors Corporation in Buffalo, N. Y., and will furnish a large part themselves. Henry M. Leland, Detroit, is reported to have a contract for 10,000 airplane motors for the Government, the last of which will be delivered by September, 1918. The Aero Marine Plane & Motor Co., Keyport, N. J., is said to be expecting a Government contract for airplane motors and has been inquiring for additional equipment. The Trego Motor Co., Fair Haven, Conn., is reported to have received a contract for airplane-engine parts. The Reading Standard Co., Reading, Pa., is inquiring for tools and is reported to be building motor-cycles for the Government.

The Newport News Shipbuilding & Dry Dock Co., Newport News, Va., has closed with the Milwaukee Electric Crane & Mfg. Co. for nine 7½-ton and two 20-ton shop and yard cranes. This concern has also sold to the Staten Island Shipbuilding Co. a 20-ton crane and the Pawling & Harnischfeger Co. has sold the Staten Island concern a 75-ton crane. The Midvale Steel Co. has bought two 60-ton cranes. The Chile Exploration Co. and affiliated copper companies are still buying cranes on a list issued several weeks ago.

The Driver Harris Co., Harrison, N. J., is erecting a foundry building, 70 x 200 ft., which will be devoted mainly to the production of Nichrome castings, and which will house a 2-ton Heroult electric steel furnace.

The Christiania Machine Co., 30 Church Street, New York, has acquired property, about 75 x 100 ft., at Richmond Terrace and Bodine Street, West New Brighton, Staten Island, for the construction of a new shop.

The American Instrument & Tool Co., New York, has been incorporated with a capital of \$10,000 to manufacture surgical and medical instruments. The incorporators are A. C.

Helfer and G. and H. V. Vollinger, 961 Mott Avenue, New York.

The American Spray Co., 26 Cortland Street, New York, has leased the former plant No. 5 of the United States Printing & Lithographing Co., at Elizabethport, N. J., for the establishment of a works for the manufacture of spraying apparatus.

The Auto Pedal Pump Sales Corporation, New York, has been incorporated with a capital of \$100,000 to manufacture automobile trucks and accessories. C. L. Beck, K. C. Busch and A. R. Redburn, 798 Tenth Avenue, New York, are the incorporators.

The Progressive Smelting & Metal Corporation, 547-551 West Twenty-fifth Street, New York, is having plans prepared for alterations and additions in its foundry and other plant departments, to cost about \$10,000.

The Albert & Davidson Pipe Corporation, New York, has filed articles of incorporation with a nominal capital of \$5,000 to manufacture pipes, tubing, rails and kindred products. I. Albert and H. and E. Davidson, 200 Ross Street, Brooklyn, are the incorporators.

The Tacony Ordnance Corporation, New York, has been incorporated with a capital of \$100,000 to manufacture ordnance. O. W. Bird, Jr., J. B. Warren and W. C. Pearson, 165 West Seventy-sixth Street, are the incorporators.

The Federal Shipbuilding Co., 54 Dey Street, New York, is having plans prepared for its new shipbuilding plant on the meadows, Newark, N. J. The company has acquired a total of about 140 acres for the proposed plant, which will comprise 12 shipbuilding berths, steel works and shop structures. The American Bridge Co., 30 Church Street, is engineer.

The West Motor Co., Inc., New York, has been incorporated with a capital of \$25,000 to manufacture commercial automobiles. The incorporators are A. M. Sullivan and S. S. and H. Myers, 318 West One Hundredth Street.

A seven-story refrigerating plant, 100 x 125 ft., will be constructed by the New York Butchers' Dressed Meat Co., Eleventh Avenue and Thirty-ninth Street, New York, at Eleventh Avenue and Fortieth Street. The structure will cost about \$250,000.

The New Dorp Mfg. Co., Richmond, Staten Island, N. Y., has filed articles of incorporation with a capital of \$15,000 to manufacture engines, boilers and foundry supplies. H. Rosenbusch, L. F. Goldman and W. H. Schuster, New Dorp, are the incorporators.

The Electric Auto-Lite Co., 214 West Forty-ninth Street, New York, manufacturer of electric lighting equipment for automobiles, has increased its capital from \$13,000,000 to \$15,000,00.

The Baker Economic Transport Corporation, New York, has been incorporated with a capital of \$600,000 to manufacture motors, engines and kindred specialties. W. A. Hall, C. W. Baker and J. A. Chard, 250 Fulton Street, are the incorporators.

The Blava-Schrimer Co., Inc., New York, has filed articles of incorporation with a capital of \$10,000 to manufacture machinery and allied appliances. G. Schrimer, L. Blava and J. Patterson, 43 Cedar Street, are the incorporators.

George H. Ames, Brooklyn, N. Y., and Louis Rebele, New York, have incorporated in Delaware the Foreign Crucibles Corporation, Ltd., with capital of \$250,000, to manufacture crucibles of various kinds.

The Simmons Machine Co., 985 Broadway, Albany, N. Y., is planning for the construction of a new one-story addition to its plant to cost about \$12,000. Thornton W. Price, Woolworth Building, New York, is architect.

The American Locomotive Co., Schenectady, N. Y., will build a new one-story erecting shop at its Pittsburgh, Pa., works. Contract has been awarded.

The Cohoes Rolling Mill Co., Canvass and Courtland streets, Cohoes, N. Y., specializing in the manufacture of wrought iron pipe, has increased its capital from \$500,000 to \$1,000,000.

The North East Electric Co., Whitney Street, Rochester, N. Y., will build a new machine shop at Orchard Street and Lyle Avenue to cost about \$15,000.

The Symington-Anderson Co., Lincoln Park, near Rochester, N. Y., has awarded contracts for the construction of a new one-story plant, about 200 x 700 ft., to cost \$300,000. The structure will be used for the manufacture of cannons.

The La France Motor Truck Co., Elmira, N. Y., has been incorporated with a nominal capital of \$5,000 to manufacture motor trucks. H. C. Mandeville, A. La France and I. L. Booth, all of Elmira, are the incorporators.

The Elmira Foundry Co., Woodlawn Avenue, Elmira,

N. Y., specializing in the production of iron castings, will build a new electric transformer station at its plant to cost about \$10,000. A new boiler works will also be constructed at a cost of about \$35,000.

The Geneva Cutlery Co., Lehigh Street, Geneva, N. Y., manufacturer of razors and cutlery, will build a one-story brick and steel power plant, about 60 x 120 ft., in Torrey Park, for factory operation.

The Smith Elevator Co., Buffalo, has been incorporated with a capital of \$75,000 to manufacture elevators and elevator equipment. George E. Burford and C. W. and M. E. Smith, all of Buffalo, are the incorporators.

The American Brass Foundry Co., Buffalo, is planning for the erection of additions to its plant. The company has made application to the city for the closing of Arizona Street to provide for the new extension.

The Standard Fuse Corporation, Paulsboro, N. J., is planning for the immediate installation of new automatic machinery at its works.

The Auto Machine Parts Co., Jersey City, N. J., has been organized to operate a plant at 6 Provost Street. Lucien Stone, East Orange, and Philip Corridon, 191 First Street Jersey City, head the company.

The International Loading Corporation, Jersey City, N. J., has been incorporated with a capital of \$1,500,000 to manufacture machinery and tools. Samuel B. Howard, Arthur W. Britton and George V. Reilly, 65 Cedar Street, New York, are the incorporators.

The Crucible Steel Co., South Fourth Street, Harrison, N. J., has filed plans for the construction of a new one-story concrete addition to its plant, about 130 x 262 ft., to cost \$165,000.

The General Electric Co., Harrison, N. J., has awarded a contract for the construction of a new two-story brick and reinforced-concrete addition to its plant on Gross Street. The structure will be 132 x 255 ft. Edward M. Waldron, Inc., 665 Broad Street, Newark, is the contractor.

The Atlas Aircraft Corporation, Bordentown, N. J., has been incorporated in Delaware with a capital of \$500,000 to manufacture aeroplanes and other aircraft. J. V. Herron, Bordentown, and J. J. Bugsley, Merchantville, are the principal incorporators.

J. Wiss & Sons Co., 31 Littleton Avenue, Newark, N. J., manufacturer of razors and shears, is taking bids for the construction of additions to its plant to cost about \$10,000. The structures will comprise a two-story and basement building, about 25 x 40 ft., and a one-story addition, 20 x 35 ft.

The Oxweld Acetylene Co., 646 Frelinghuysen Avenue, Newark, N. J., will build a new one-story brick and concrete welding shop addition to its plant, about 42 x 60 ft., to cost \$11,000.

The Ideal Wheel & Tire Co., Newark, N. J., has been incorporated with a capital of \$50,000 to manufacture automobile wheels and tires. Joseph H. Dwork, Hyman Small and Max Munzer, Newark, are the incorporators.

The Board of Education of the Essex County Vocational Schools, 316 Essex Building, Newark, N. J., will receive bids until 4 p. m., Aug. 22, for a new motor generator set, panels and auxiliary equipment for the county vocational schools. Wesley A. O'Leary is director.

The Des Lauries Aircraft Corporation, Jersey City, N. J., recently incorporated with a capital of \$500,000, has acquired property consisting of about six acres in Mulberry Street, Newark, N. J., for the construction of a plant for the manufacture of airplanes. The company has also leased an existing three-story building, about 200 x 400 ft., at the same location for a general assembling works.

The Willys-Overland Co., Newark, N. J., is planning for the erection of a new two-story reinforced-concrete service plant at Palen and Hackett streets, about 63 x 240 ft.

The Linn Mfg. Corporation, Morris, N. Y., L. Kenyon president, will erect a factory 50 x 230 ft., one story.

The Geneva Cutlery Co., Geneva, N. Y., will build a power plant 60 x 120 ft., one story. D. H. Henry is president.

The St. Lawrence Metal Products Corporation, Ogdensburg, N. Y., has been incorporated by E. J. Turley, P. H. Fitzgibbons and J. E. Fell. Capital stock, \$200,000.

The two factory buildings to be erected at Park Hill, East Syracuse, N. Y., by the Onondaga Steel Co., will be 80 x 100 and 80 x 120 ft., respectively, each one story, and will cost \$30,000.

The Simmons Machine Co., Albany, Charles A. Simmons, president, will build a one-story factory addition to cost \$12,000.

The Sealright Co., Fulton, N. Y., has been incorporated with a capital stock of \$30,000,000, to manufacture special

machines and tools. W. L. Wright, E. W. Skinner and J. T. Bond, Fulton, are the incorporators.

Plans have been completed for a one-story factory addition for the Oldbury Electro Chemical Co., Buffalo Avenue and Industrial Railroad, Niagara Falls, N. Y.

The Carborundum Company, Niagara Falls, N. Y., F. W. Haskell, president, has let contract to the Turner Construction Co. for the erection of four additional factory buildings at its plant, Buffalo Avenue and Eighteenth Street.

Contract has been awarded by the Continental Can Co. for the erection of a 55 x 250 ft., three-story addition to its factory at Syracuse, N. Y., to cost \$200,000.

J. Hungerford Smith Co., 410 North Goodman Street, Rochester, N. Y., has let contract for construction of a boiler and engine house.

Burdick & Son, Albany, N. Y., are erecting a four-story factory addition, 160 x 67 ft., at Hamilton and Mosier streets, to cost \$50,000.

The Caledonia Bean Harvester Works, Caledonia, N. Y., is completing a foundry building, 66 x 98 ft.

The Elmira Foundry Co., Elmira, N. Y., has had plans drawn for a one-story and basement boiler house, 60 x 80 ft., and a transformer station, 38 x 40 ft., the total cost of which, with equipment, will be \$45,000.

The North East Electric Co., Rochester, N. Y., has let contract for a machine shop on Whitney Street, to cost \$15,000.

The Taylor-Shantz Co., Rochester, manufacturer of dies and tools, is completing a two-story machine shop addition, 79 x 128 ft., to cost \$27,000.

New England

Boston, Aug. 13.

The machine tool trade has been very quiet among the dealers the past week. Sales have been below normal and inquiries scattered and small in volume. Plant expansion is slowing up with one or two notable exceptions, although it is expected that within a few days some of the projects that have been hanging fire for weeks awaiting word from Washington may enter the market for actual purchases. It is reported that machinery is being ordered for the plant which is to be equipped in Bridgeport by the Bullard interests for the building of six-inch guns for the Government.

The machine-tool builders are very busy and several large orders are reported as having been placed for war industries in sections outside of New England. It is reported that local plants have received orders and inquiries from the American Radiator Co., Buffalo, for equipment to build three and four-inch guns; Bartlett, Hayward & Co., Baltimore, for similar equipment; the Wisconsin Gun Co., Milwaukee, Wis., which is to build howitzers; and the American Brake Shoe & Foundry Co., which is to build guns. The Curtiss Aeroplane Motors Co., the Packard Motor Car Co. and the Nordyke & Marmon Co. are ordering machine tools to be employed in building airplane engines. The Rockwell-Drake Corporation has ordered additional equipment for its Rockwell-Drake division, Plainville, Conn., and its Standard Roller Bearing division, Philadelphia.

The receivers of the Hopkins & Allen Co., Norwich, Conn., have been given permission by the United States Court to continue the business, and work on the Belgian contract will go on for the present. There is a possibility that the contract will be taken over by other parties.

The Crompton & Knowles Loom Works, Worcester, Mass., has awarded a contract for a foundry addition, 126 x 277 ft., two stories, at its plant in Providence, R. I.

The Plume & Atwood Mfg. Co., Thomaston, Conn., has awarded a contract for an addition, 33 x 72 ft., two stories, to its casting shop.

The East Coast Ship Co., Boothbay Harbor, Me., has been incorporated with authorized capital stock of \$200,000 by Lezebes E. Cliff, president; Howard E. Womys, treasurer; and Irving W. Wood, clerk.

The Stanford Steel Products Co., Milford, Conn., has increased its capital stock from \$30,000 to \$60,000.

The Torrington Co., Torrington, Conn., has issued additional stock to the amount of \$7,999,000.

Work has been begun on a shipyard at Newington, N. H., to cost \$250,000, by a corporation now forming, of which L. H. Shattuck, 208 Granite Street, Manchester, N. H., is to be president.

The Standard Electric Time Co., Springfield, Mass., is asking bids on an addition, 34 x 105 ft., three stories.

The Taft-Pierce Mfg. Co., Woonsocket, R. I., has bought the adjoining property and factory building, now occupied by

the Woonsocket Spinning Co., which is to move to a new plant.

The Bureau of Yards and Docks, Navy Department, Washington, is preparing plans for a power plant and distributing system, to cost \$450,000, at New London, Conn.

The Edward L. Sibley Mfg. Co., brass goods, Bennington, Vt., has awarded a contract for a factory, 60 x 157 ft., two stories.

The Gaynor Mfg. Co., Stratford, Conn., has increased its capital stock from \$150,000 to \$200,000.

Philadelphia

PHILADELPHIA, Aug. 14.

The United States Government has awarded a contract to the Austin Co., Cleveland, Ohio, for a one-story brick and steel building, about 400 x 400 ft., at the League Island Navy Yard, Philadelphia, for the manufacture of airplanes. The plant, with equipment, is estimated to cost \$1,000,000, and will have a capacity of about 1000 airplanes a year.

The City of Philadelphia will build a new addition to its power plant at the Byberry Hospital to cost about \$77,000. The William Linker Co., Heed Building, Philadelphia, has the contract for erection.

F. R. Hansell, Philadelphia, and associates, have incorporated in Delaware the Direct Drive Motor Co., with capital of \$2,000,000, to manufacture automobiles and parts. S. C. Seymour, Camden, N. J., is also an incorporator.

The Morris Wheeler Co., Thirtieth and Locust streets, Philadelphia, has awarded a contract for the construction of a new shop addition at its plant, to cost about \$7,000.

The Lyndall Motor Truck Co., Philadelphia, has been incorporated in Delaware with a capital of \$10,000 to manufacture motor trucks, etc. Frank S. and Arthur C. Lyndall, both of Philadelphia, are the principal incorporators.

F. S. Jones, Philadelphia, operating machine repair shops at Media and Edgewood streets, has filed plans for the erection of a new two-story plant, 40 x 50 ft., at Sixty-first and Media streets.

The Philadelphia & Reading Railroad, Philadelphia, is said to be planning for the construction of a new roundhouse at its local yards, with capacity of sixteen locomotives of heavy type. A new machine shop and other shop buildings will be erected, including a power plant for works operation.

The Thermo Service Corporation, Philadelphia, has been incorporated in Delaware with a capital of \$10,000 to manufacture fireless cookers and kindred metal specialties. Wray C. Arnold, Frank J. Reed, Jr., and Robert C. Fender, all of Philadelphia, are the incorporators.

The Auto Radiator Co., 1315-17 Vine Street, Philadelphia, is taking bids for the construction of a new two-story plant, about 30 x 80 ft.

Charles Y. Scully, 5352 Germantown Avenue, Philadelphia, has had plans prepared for a new one-story machine shop at 5317 Germantown Avenue.

A new one-story reinforced concrete power plant for factory operation will be constructed by the William Freihofer Baking Co., North Twentieth Street and Indiana Avenue, Philadelphia, at its baking works to be erected at Wilmington, Del., at a cost of \$75,000. Contract for erection has been awarded.

The Chester Shipbuilding Co., Chester, Pa., has been granted permission by the Commissioners of Navigation, Philadelphia, to construct four new shipways and auxiliary structures at its local works. The company has also received permission to erect its proposed new plant at Bristol on property recently acquired from the Standard Cast Iron Pipe & Foundry Co., to comprise, in initial installation, 12 shipways with shop buildings. It is said that about 6000 men will be employed at the latter plant.

The Lincoln Brass Foundry, Chester, Pa., has commenced the operation of a new plant at Fifth and Jeffrey streets. The company plans extensive operations; a branch office has been established at 105 Fulton Street, New York. J. A. Worrell heads the company.

The McClave-Brooks Co., Poplar Street and Park Place, Scranton, Pa., manufacturer of iron and steel castings, is planning for the construction of a one-story addition to its plant, about 30 x 50 ft., to cost \$12,000. Duckworth Brothers, Coal Exchange Building, are architects.

The Eastern Pennsylvania Railways Co., Pottsville, Pa., will build a new one-story addition, about 75 x 100 ft., to its car repair plant at Palo Alto. The company is also planning for the construction of a new power house at that location to replace the plant recently destroyed by fire. The J. G. White Engineering Corporation, 43 Exchange Place, New York, will be in charge of construction.

The Interstate Feed Machine & Products Co., 647 East Mason Street, York, Pa., is building a new machine shop at Ephrata to provide for increased capacity.

Noble C. Righter, formerly connected with the Keeley Stove Co., Columbia, Pa., has acquired the Shawnee Brass & Iron Foundry Co. It is reported that extensions and improvements will be made in the plant.

The Ingersoll-Rand Co., Athens, Pa., manufacturer of machinery, has awarded a contract for the construction of a new one-story machine shop at its plant, 170 x 200 ft. The company is also having plans prepared for a new one-story addition, about 90 x 145 ft.

The Chambersburg Engine & Foundry Co., Chambersburg, Pa., has been organized to acquire the plant of the Quincy Engine Co. The new organization will specialize in the manufacture of gasoline engines, air compressors, pumps and similar products, and plans to increase the capacity of the plant with the installation of new equipment. Effective with the enlargement the present working force will be increased.

The United States Government has acquired about 20 acres of land at Middletown, Pa., from the Keystone State Fair & Industrial Exposition Co., and has commenced the erection of a new building, about 300 x 850 ft., to be equipped and used as an assembling plant for aeroplanes, hydroplanes and other aircraft. The initial works will cost about \$400,000. The James Stewart Co., Pittsburgh, has the contract for erection.

The Johnstown Traction Co., Johnstown, Pa., is considering the construction of a plant near Coopersdale for car rebuilding and repair work.

The Light Mfg. & Foundry Co., Pottstown, Pa., manufacturer of aluminum specialties of various kinds, is taking bids for the construction of a new two-story and basement addition to its plant, about 30 x 50 ft. The company will also make improvements in its foundry. A. H. Heilman, Reading, is architect.

The Traylor Shipbuilding Corporation, Allentown, Pa., operated by interests connected with the Traylor Engineering Co., has received permission from the Commissioners of Navigation, Philadelphia, to construct 10 shipbuilding berths with auxiliary structures, at its proposed new works, Cornwells. Samuel W. Traylor heads the company.

Baltimore

BALTIMORE, Aug. 13.

Sites for shipbuilding plants are still drawing attention in this section. Several individuals are said to be working quietly to secure property which it is planned to use as sites for large plants. The various sections on Curtis Bay seem to be the most attractive.

The Mann Shipbuilding Co. has been incorporated with \$150,000 capital stock, headed by W. B. W. Mann, head of the Mann Yacht Building Co., foot of Light Street, Baltimore. The new company is understood to have taken over the yacht building company and will build a plant on Curtis Creek. It also is said that the company expects to get some Government contracts shortly and the work of constructing the plant will begin in the near future. Mr. Mann is president of the company; Julius D. Sweet, Syracuse, N. Y., is vice-president and treasurer, and John E. Thomas is secretary.

The Baltimore Dry Docks & Shipbuilding Co., Baltimore, has been granted a permit for the construction of a 110 x 340 ft. building on Fort Avenue near Fort McHenry. It was to cost in the neighborhood of \$100,000. Contract has been awarded to the Belmont Iron Works.

The Baltimore Tube Co., Wicomico and Ostend Streets, Baltimore, will build a 144 x 540 ft. rolling mill to cost in the neighborhood of \$90,000. The contract has been awarded to the West Construction Co., American Building.

The High Point Machine Works, High Point, N. C., has been incorporated with \$50,000 capital stock by W. W. and W. L. Smith and V. J. Melvin.

The Riter-Conley Co., Pittsburgh, manufacturer of steel plate, pipe, etc., is planning for the construction of an addition to its shipbuilding plant at Fairfield, Md.

The Maryland Shipbuilding Co., Baltimore, is having plans prepared for its proposed new shipbuilding plant to cost about \$1,000,000. Charles E. F. Clarke is president. W. W. Ragan, Fidelity Building, is engineer.

The Smith Concrete Block Machine Co., Mount Airy, Md., has been incorporated with a capital of \$50,000 to manufacture machinery to be used in concrete construction. Walter R. Rudy, Arthur E. Phebus and John Lewis are the incorporators.

The United States Government, Army Department, will build a new blacksmith shop at its remount station, Newport

News, Va., in connection with other structures and improvements to cost about \$85,000.

The Tredegar Co., South Sixth Street, Richmond, Va., is building a new one-story plant, about 100 x 100 ft., for the manufacture of munitions. The structure will cost about \$75,000.

The W. J. Oliver Mfg. Co., Knoxville, Tenn., manufacturer of projectiles, is planning to increase the capacity of its plant with the installation of new machinery.

The Matthews Iron & Steel Co., Rome, Ga., is planning for the installation of new steel furnace equipment, electrically operated, at its plant.

The North Carolina Shipbuilding Co., Morehead City, N. C., recently incorporated with a capital of \$200,000 is planning for the installation of new tools and other equipment for its proposed new shipbuilding plant. G. D. Canfield is president.

Chicago

CHICAGO, Aug. 13.

Buyers of machinery whose requirements have been for the manufacture of ordnance appear to have placed the bulk of their orders, and at the present time there are no new inquiries of large proportions. It is a certainty, however, that the companies referred to, including the Wisconsin Gun Co., Milwaukee; Northwestern Ordnance Co., Madison, Wis., and Root & Van Dervoort Engine Co., East Moline, Ill., will be looking for more or less equipment from time to time to round out their shops. The Wisconsin Gun Co., while it has bought many machine tools, will need considerable incidental equipment.

The buying by the Buda Co., Harvey, Ill., referred to a week ago, included machinery worth at least \$100,000.

Most of the dealers report that the miscellaneous trade is lighter, but they consider business to be fair. Deliveries on standard machines are in many cases still further away as a result of recent large orders. One order served to put the deliveries on several machines made by a Cincinnati builder about one month further off. The tractor interests have not bought all the equipment they need.

The General Electric Co. has acquired a tract of land at Harrison Street and Oakley Avenue, Chicago. Definite information as to the reason for the purchase cannot be obtained here, but it is understood that in the course of time either a large warehouse or factory will be erected.

Recent reports that the Baldwin Locomotive Works contemplates the erection of a plant on land it owns at East Chicago are supported to some extent by the location of a work train with living quarters for a construction gang on the property. The land was purchased a few years ago and is surrounded by a high fence.

The Red Devil Speed Hammer Co. has been incorporated in Indiana with a capital stock of \$50,000, and it is reported that a factory will be built at Gary, Ind., for the manufacture of riveting machines and other machinery. Julius Cayo is president.

James G. Heggie & Sons has been formed as an Illinois corporation to erect smokestacks, tanks, piping and coke ovens. Robert B. Heggie, Gary, is the Indiana agent of the company.

The S. K. A. & S. Co., manufacturers of machinery, with offices at Peoria and a plant at El Paso, Ill., has been incorporated with a capital stock of \$100,000. Among the incorporators are William M. Springer, John F. Skaggs and Granville Kesling.

Work has been started in laying out the plant of the Peoria Malleable Casting Co., Peoria, Ill. Hewitt & Emerson are the architects.

The name of the Morris Iron & Machinery Co., Springfield, Ill., has been changed to the McGowan Iron Machinery Co.

The business formerly conducted at Canton, Ill., by F. C. Moran has been taken over by the Canton Specialty Co., a new company, and will be removed to a new factory. The incorporators of the new company are W. P. Ingersoll, E. H. Negley and F. C. Moran.

The Foster Machine Co., Elkhart, Ind., has completed the erection of a one-story, fireproof addition, 93 x 300 ft., which will be used for assembly purposes. The company has under construction another building, 132 x 165 ft., which will be used as a store room for raw materials, and is preparing to build a building 132 x 128 ft., to house its power plant.

Contracts have been awarded for the construction of a factory for the Boone Tire & Rubber Co., Eau Claire, Wis. The main building will be 66 x 262 ft., and is to cost \$22,000. It is expected that the factory will be in operation by Dec. 1.

The Minneapolis Steel & Machinery Co., Minneapolis,

Minn. has been granted a permit for the construction of a brick machine shop, 132 x 142 ft., at an estimated cost of \$60,000.

The Twin City Forge Co., which has filed a certificate of incorporation in Minnesota with a capital stock of \$500,000 is arranging to use an old plant of the Northwestern Thresher Co., Stillwater, Minn., for manufacturing tools and machinery. Among the incorporators are James L. Record and George L. Gillette of the Minneapolis Steel & Machinery Co., Minneapolis.

The Lake Shore Engine Works, Marquette, Mich., will build a new one-story machine shop to cost about \$12,000.

The Grant Wire Wheel Mfg. Co., Chicago, a Delaware corporation, has increased its capital from \$500,000 to \$1,000,000.

The Peoria Malleable Iron Co., Averyville, Ill., will build two one-story foundry additions to its plant, each about 100 x 250 ft., to cost \$65,000.

The C. R. Wilson Body Co. announces that its new factory building at Bay City, Mich., will be completed this week, and manufacturing operations started before Sept. 1. This plant is especially designed for woodworking, and is one of the most complete of its kind in the country.

The Auto Climb Out & Shovel Co., Saginaw, Mich., has been organized with a capital of \$25,000 to manufacture a device for drawing out automobiles and motor trucks when mired.

The John Knappe Machine Co., Grand Rapids, Mich., is building a brass foundry to cost about \$4,000.

Milwaukee

MILWAUKEE, Wis., Aug. 13.

Local buying of tools has been unusually large during the last week or two by reason of the establishment of two large ordnance shops, one at Milwaukee and the other at Madison, which are financed by machine-tool and machinery makers.

The Manitowoc Shipbuilding Co., Manitowoc, Wis., operating the largest yards on Lake Michigan, received formal notice on Aug. 6 that it has been taken over by the Government. Beyond three trawlers under construction for a Boston corporation, all work in hand is commandeered. The company has issued a call for 1500 additional men, particularly plate fitters, riveters, helpers, and common laborers. It is now employing about 1600 operatives. Edward Carus is president.

The General Steel Co., a Delaware corporation organized recently to succeed the Valley Steel Co., incorporated in New York, has filed articles and an application to be authorized to do business in Wisconsin, which has been granted. The company is building a new mill in Milwaukee county, at St. Francis, just south of Milwaukee, on the shore of Lake Michigan. W. E. Moore & Co., Pittsburgh, are in charge as consulting engineers.

The Janesville Barb Wire Co., Janesville, Wis., has increased its capital stock from \$150,000 to \$250,000 to accommodate the growth of its business, which makes necessary important extensions of the works. D. C. Harker is secretary.

The Republic Phonographic Co., Manitowoc, Wis., organized with a capital stock of \$200,000, as already noted, will establish a plant in Manitowoc for the manufacture of all-steel talking machines, office furniture, cabinets and similar goods. It is reported that the company will absorb the Invincible Metal Furniture Co., Manitowoc, and enlarge the plant, now employing 70 workmen. The Republic company, it is stated, is backed by Eastern capital, represented by Frank B. Keefe, T. C. McCullough and Alton Ripley, Manitowoc.

The Stowell Co., South Milwaukee, Wis., maker of hardware specialties, which recently awarded contracts for a foundry addition, 76 x 175 ft., will also build a storehouse and shipping room addition, 50 x 120 ft. The architects on both structures are Leenhouts & Guthrie, Milwaukee.

The Milwaukee Motor & Supply Co., Milwaukee, is being organized by local capital to establish a plant for the manufacture of electric motors and devices. Plans for the proposed factory are being prepared by Frank E. Gray, 86 Michigan Street.

The Modine Mfg. Co., Racine, Wis., organized in January, 1917, to manufacture automobile, truck and tractor radiators and cooling systems, is enlarging its capacity to 3000 radiators a month. A. B. Modine is president.

The Detroit Auto Radiator Co., 182 Fifth Street, Milwaukee, has incorporated its business, established two years ago, under the laws of Wisconsin without change of name. The capital stock is \$10,000. Joseph Colker is president.

The Boone Tire & Rubber Co., Sycamore, Ill., awarded the general contract for the erection of its new factory at Chippewa Falls, Wis., to the Wisconsin Construction Co.,

local, at \$22,000. It will be 66 x 262 ft., one story high, of reinforced concrete. The contract for electrical equipment and installation was awarded to the Kelley Construction Co. at \$11,000. The work is to be completed within 90 days and it is hoped to have the plant in operation by Dec. 1. I. V. McLean is president.

The Lawson Aircraft Corporation, Green Bay, Wis., organized with a capital stock of \$200,000 to manufacture airplanes, has elected the following officers: President, George W. Ellis; vice-president and general manager, Alfred W. Lawson; secretary, C. I. Smith; treasurer, George A. Richardson; counsel, Max H. Strehlow; directors, William Hoberg, F. E. Burrall and Messrs. Ellis, Lawson and Richardson. It was decided to issue at par \$50,000 of preferred and \$150,000 of common stock, the proceeds to go into machinery, tools, materials and labor. Practically the entire issue has been subscribed to by Green Bay capital.

The Janesville Products Co., Janesville, Wis., formerly the Wisconsin Carriage Co., having recently changed its style and increased the capital stock from \$100,000 to \$130,000, has purchased the entire business of the Skudder Car Co., Chicago, manufacturer of small self-propelled vehicles for children. The manufacture of buggies and sleighs will be discontinued and all production concentrated on children's vehicles. An output of 100,000 during the coming year is scheduled. R. E. Wisner is general manager.

The Landover Truck Co., Chicago, has decided to move its works and office to Marinette, Wis., where local capital has subscribed to a fund of \$25,000 to be used for the purchase of machinery, materials and labor. The company will occupy the former plant of the Main Street Iron Works, which is now being overhauled and re-equipped. Production will begin about Sept. 1 or 15. E. W. LeRoy is chairman of the Marinette committee.

The Gisholt Machine Co., Madison, Wis., has amended its corporate articles to include among the business and purposes of the company the acquisition, subscribing for, purchasing and holding of stock of other corporations. This is done to enable the Gisholt company to finance the Northwestern Ordnance Co., Madison, organized with \$100,000 capital stock, as already noted, at the request of the Government, to manufacture 4.7-in. field pieces. C. A. Johnson is president.

Joseph Benesch & Co., 1718 Villet Street, Milwaukee, wholesale scrap metal and junk dealers, will establish new yards and warehouses at Western Avenue and South Pierce Street. Contracts have been awarded for the erection of a two-story brick and mill warehouse, 110 x 220 ft., costing \$25,000.

The Appleton Auto Body Co., Appleton, Wis., has increased its capital stock from \$5,000 to \$25,000 for the purpose of erecting a complete new automobile body manufacturing plant, as already noted. C. G. Seeger is general manager.

The Independent Foundry Co., West Allis, Milwaukee, incorporated some time ago with \$25,000 capital stock, has purchased a site at Fifty-fourth Avenue and Burnham Street for its proposed new gray-iron shop. Because the tract is in close proximity to the shops of the Obenberger Forge Co. a survey is being made to determine if the site is suitable for foundry purposes. August M. Fons is secretary.

The Silent Washer Co., Clintonville, Wis., has awarded a contract to Herman Kroll, local, for the erection of the first unit of its new factory, 40 x 120 ft., two stories and basement, of solid brick, to be ready within 90 days. The plant will be moved from Appleton to Clintonville upon the completion of the building. Robert Fischer is secretary.

The Pawling & Harnischfeger Co., Milwaukee, maker of cranes and hoists, awarded the contract to Riesen Bros. Co. for the erection of a power plant addition, 50 x 85 ft., to contain a 500 hp. installation, contracts for which have been noted previously. The engineers are Woodmansee & Davidson, Chicago and Milwaukee.

The Gas Motor Efficiency Co., Janesville, Wis., maker of sparking plugs for internal combustion engines, will double its capacity to provide for a production of 1200 plugs in 24 hr., by adding a full night force. Considerable new automatic machinery will be purchased as soon as such equipment is available on the market.

The Falls Motors Corporation, Sheboygan Falls, Wis., resumed operations with full day and night shifts on Aug. 6, after a recess of one week for inventory and overhauling. The usual midsummer recess was reduced from two weeks this year because of the urgent demand for gas engines for automobiles, airplanes, trucks and tractors. A 40-in. steel stack, 80 ft. high, was installed by the Optenberg Iron Works, Sheboygan.

The Chippewa Valley Auto Co., Chippewa Falls, Wis., will award contracts Sept. 1 for the erection of a \$50,000 public garage and service building at Columbia and Bay streets. Plans are now being prepared by local architects.

Cincinnati

CINCINNATI, Aug. 13.

A number of orders for machine tools has lately been received for Government shops. Large tools are mostly in demand. There is a big demand for sensitive drilling machines from aeroplane makers, the Dayton-Wright Aeroplane Co., of Dayton, Ohio, having bought heavily from a local firm. There is also an improvement in the call for portable electric drilling machines from different sources. As a rule manufacturers are now too busy to change the designs in any of their machines.

The foundry strike at Hamilton, Ohio, is still giving trouble to several foundries in that city, the largest two being closed.

The Southern Locomotive Valve Gear Co., O. C. Martin, superintendent, Knoxville, Tenn., is inquiring in this market for the following equipment:

- One 24 to 36-in. x 16 ft., or longer, engine lathe.
- One 20-in. engine lathe.
- One 30-in. upright drill press, with tapping attached.
- One 5000 or 6000-lb. steam hammer.

The Ohio Welding & Mfg. Co., Cincinnati, has leased the former plant of the Wm. E. Gang Co., in West End and will remove its plant, now located on Sixth Street.

The Orez Mfg. Co., Middletown, Ohio, has been incorporated with \$10,000 capital stock by George D. Coddington and others. A small automobile specialty will be manufactured.

The Dayton Reliance Tool & Mfg. Co., Dayton, Ohio, has been incorporated with \$20,000 capital stock to make dies, jigs and fixtures. The company recently moved its plant to 818 East Monument Avenue, where more commodious quarters were obtained.

The Dayton-Wright Aeroplane Co., Dayton, Ohio, has purchased the three-story plant of the Enterprise Carriage Co., at Miamisburg, Ohio, and will fit it up for the manufacture of aeroplane propellers.

The Springfield Metallic Casket Co., Springfield, Ohio, has plans under way for an extensive addition to its plant.

The Toronto Foundry & Machine Co., Toronto, Ohio, has finished an addition to its plant.

The Columbus Novelty & Mfg. Co., recently organized, Columbus, Ohio, will engage in the manufacture of tools, dies, jigs and special machinery. George D. Barok is mechanical engineer in charge.

An auto spring company will be located at Richmond, Ind., by T. B. Jenkins of St. Louis. Particulars may be obtained from George Seidel, vice-president, Commercial Club of Richmond.

R. A. Jones & Co., Covington, Ky., are in the market for one No. 13 Brown & Sharpe gear cutter for spur or bevel gears, and one cam cutting machine. Offers of either new or second-hand machines will be considered.

The Central South

LOUISVILLE, KY., Aug. 13.

There has been a marked increase in inquiries for building materials, including structural and reinforcing steel, after a long lull in this field. Coal and oil development interests continue insistent demands for equipment and supplies, the past week having seen fully a score of these companies begin operations. Several fires have destroyed elevator equipment which will be replaced. Labor is very scarce.

The Southern Machinery Exchange, Somerset, Ky., is in the market for an electric hoist; load, 6000 lb.; lift, 40 ft.; speed, 100 ft. p. m. or more.

The John G. Duncan Co., Knoxville, Tenn., is asking for dealers' prices on a good, second-hand or rebuilt 1½-in. bolt threading machine, and is also in the market for two second-hand or rebuilt 10-ton gasoline road rollers, in first class condition for immediate delivery.

Birmingham

BIRMINGHAM, ALA., Aug. 13.

There has been no interruption in the persistent demand for machinery. New shipbuilding plants have added to the demand for lathes. Apprehension of trouble in coal mines has accentuated the inquiry for electrical apparatus.

The Henderson Shipbuilding Co. has been incorporated at Mobile by Frank Henderson, Dr. W. T. Henderson and others with a capital stock of \$250,000. The company has contracts to build four submarine chasers and other craft.

The Oscar Daniels Co., New York, will erect a shipbuilding plant at Brunswick, Ga., to build 12 all-steel vessels of 9,500 tons each at an approximate cost of \$18,000,000. Site has been secured.

Alachusa Phosphate Co., Jacksonville, Fla., capital stock \$300,000, has been incorporated by George W. Haines, W. F. Kay and others.

Peninsular Metal Co., Jacksonville, Fla., capital stock \$50,000, has been incorporated by Perry W. Zacharias and others.

Georgia Railway & Power Co., Tallulah, Ga., contemplates issuing \$2,500,000 of notes in connection with plan for additional power developments embracing a total expenditure of \$4,800,000.

Texas

AUSTIN, TEXAS, Aug. 11.

The deterioration of the cotton crop during the last two weeks has caused a big falling off in the demand for cotton-ginning machinery as well as for equipment for compresses and cottonseed oil mills. Considerable machinery for the crushing of peanuts is being installed in the different cottonseed oil mills, however. The small tool trade is in very satisfactory condition.

The Midland Bridge Co. has purchased a site on the Houston ship channel, where it will construct shipbuilding yards for the immediate construction of six wooden hulls for the United States Government.

The Lake Charles Iron Works, Inc., has purchased a site at Lake Charles, La., upon which it will erect several buildings to be occupied as machine shops. The plant will include a foundry, pattern shop and other departments and will cost about \$50,000.

Hord Hardeman, of St. Louis, Mo., who recently purchased the property of the Hill Sugar Co., at Harlingen, including a sugar plantation of 1200 acres, will, it is stated, rebuild the sugar mill of the company which was recently destroyed by fire. The new plant will cost about \$250,000.

The El Paso Valley Water Users' Association recently had a conference with L. M. Lawson, manager of the Elephant Butte Reclamation project, with a view of bringing about the construction of a hydroelectric plant at the Elephant Butte Dam which spans the Rio Grande at a point in New Mexico north of El Paso. The proposed plant will cost about \$1,000,000 and will be built by the El Paso Water Users' Association. It will have a capacity of about 40,000 hp., it is stated.

The Grand Prairie Mfg. Co. will rebuild its factory at Grand Prairie which was devoted to manufacturing household refrigerators. The plant was recently destroyed by fire. The proposed new plant will cost about \$125,000. The building will be of brick construction.

California

LOS ANGELES, Aug. 7.

The Fulton Shipbuilding Co., Wilmington, Los Angeles Harbor, has filed plans for the construction of a new one-story shop building, about 160 x 200 ft. C. E. Fulton heads the company.

The Davis Mfg. Co., Los Angeles, has filed notice of organization to operate a machine shop at 123 South Flower Street. H. S. Davis heads the company.

The George R. Bentel Co., Los Angeles, has completed the construction of a new four-story automobile building at 1015 South Grand Avenue. An extensive mechanical department will be installed, including a machine shop, fully equipped, on the second floor, together with construction and general service departments. Blacksmith equipment and heavy machinery, as hammers, etc., will be installed in the basement.

The Southern California Edison Co., Los Angeles, has received permission from the State Railroad Commission to issue bonds for \$10,000,000 for extensions and betterments. The company is planning for the construction of an addition to its electric power plant at Big Creek, acquired through its consolidation with the Pacific Light & Power Co. The plant extension and equipment is estimated to cost \$1,500,000, and with new transmission lines, about \$3,000,000.

The Wilmington Shipbuilding Co., 621 Investment Building, Los Angeles, has acquired property with frontage of about 600 ft. on the East Wilmington Basin, Los Angeles Harbor, for the construction of a new shipbuilding works. The proposed plant is estimated to cost about \$100,000 for initial operations, of which about \$50,000 will be appropriated for necessary machinery. It is said that the company

has received contracts for the immediate construction of four ships. C. R. Runyon is president.

The new plant of the Los Angeles Shipbuilding & Dry Dock Co., Los Angeles, in the outer harbor district, Wilmington, is rapidly nearing completion, and construction of vessels for which the company has received contracts from the United States Government, will be begun at once. The plant will consist of a machine shop, 100 x 400 ft., plate shop, 100 x 300 ft., riveting shop and erection buildings. A power house, about 100 x 200 ft., will be constructed immediately for plant operation. The company's property comprises about 70 acres of tidelands, and plans are being prepared, it is said, for later additions, including a 15,000-ton dry dock, about 90 ft. wide and 750 ft. long, with shop and construction buildings for ship work. Fred L. Baker, head of the Baker Iron Works, 950 North Broadway, is president and treasurer.

Indianapolis

INDIANAPOLIS, Aug. 13.

The Rockford Bit Co., Kokomo, Ind., has filed articles of dissolution with the Indiana secretary of state.

The C. C. Madison Mfg. Co. has been incorporated at Indianapolis with \$50,000 capital stock to manufacture attachments for traction wheels and other devices. The directors are M. O. Madison, R. L. Madison and G. L. Madison, all of Scandia, Kansas.

The Vincennes Electric Supply Co. has been incorporated at Vincennes, Ind., with \$10,000 capital stock, to manufacture and deal in electrical supplies. The directors are A. J. Heltz, Jos. E. Gordon and Arrie Freeland.

The Ligonier Refrigerator Co., Ligonier, Ind., has secured a \$27,500 contract from the Government for refrigerators.

The Indiana Truck Co., Marion, Ind., which recently reduced its capital stock from \$250,000 to \$100,000, is not in any way connected with the Indiana Truck Corporation of the same city, which does not intend to reduce its business activities in any way.

The Pacific Northwest

SEATTLE, Aug. 10.

The strike in the lumber mills and logging camps of the Northwest, which is still unsettled, has extended to a number of shipyards, where the employees have refused to handle "unfair" lumber. Two plants in Olympia and four in the Grays Harbor country have been closed. The plants were working on Government contracts. The embargo has not extended to Seattle and Tacoma shipyards, and the threatened strike in the Seattle plants, which had been set for Aug. 1, has been averted by settlement of demands between the employers and workers.

In the State of Oregon the lumber industry has never been in a more flourishing condition. All the mills are operating to capacity, their order books are filled, and it is impossible to supply the demand. The labor troubles experienced in Washington have not been felt in Oregon mills, and the plants in that state are getting a huge volume of work that would ordinarily go to the Washington plants.

Statistics show that the orders in the lumber business are 90 per cent normal; that shipments are 75 per cent of normal, and production is about 53 per cent normal. This vast curtailment of production means a shortage of lumber. Since the midsummer shutdown, followed by acute car shortage, both of which caused an immense falling off in production and the final clearance of stocks, it has been impossible for mills to catch up.

The healthy condition of Seattle's manufacturing industries is shown by figures recently compiled, indicating that the number of persons engaged in such industries during 1914 and 1916 has increased 39.5 per cent. Plants have increased 13.3 per cent, while the value of products manufactured has increased 55.3 per cent. There has never been a time in the history of the State when such a volume of products has been turned out.

The John Wilson Boat & Shipbuilding Co., Seattle, plans to immediately move its plant to a waterfront site, and to enlarge its scope to include construction of larger vessels. Plant has been building small craft and barges.

The plant of the Vancouver Engineering Works, Vancouver, B. C., is completely tied up by a strike of its employees, who are asking recognition of the union.

The Granby Consolidated Mining, Smelting & Power Co., operating a big copper plant and smelter at Anyox, B. C., and the smelter at Grand Forks, has acquired 2,000 acres of coal lands. About half a million dollars will be spent in developing the lands to produce coke. A coke manufacturing plant costing \$1,500,000 will be erected near Anyox, it is reported.

The Tregoning Boat Co., operating a large plant in Seattle for the manufacture of metal lifeboats and rafts, has located a plant in Portland which will turn out 25 boats daily. H. N. Young will have charge of the Portland branch.

The Spokane Gas Acetylene Gas Co., Spokane, Wash., plans to re-incorporate its company, and reorganize for construction of an enlarged manufacturing plant.

L. H. Gray & Co., shipbuilders, Seattle, have purchased 124 acres near Bremerton, on which the company plans to establish a plant to manufacture concrete ships and ocean-going wooden vessels. Company now holds several wooden ship contracts.

Allen Shipbuilding Co., Seattle, recently incorporated, has completed plans for a 10-acre wooden shipbuilding plant in Seattle, to construct wooden ships. Yards will have six ways.

Somarstrom Bros., shipbuilders, St. Helens, Ore., have been awarded contracts by the Government to build four government steamships of the Hopp type. Vessels are to be delivered within eight months.

The Northern Pacific Railway Co.'s reclamation plant at South Tacoma, Wash., representing an investment of \$50,000, will soon be in operation. Complete equipment, including bolt-threading machines, six-spindle taper nut-reclaiming machine, 35-ton roller, etc., has been installed to reclaim large quantities of iron and steel.

The plant of the Watson Brothers' Iron Works, Astoria, Ore., has been sold to the Pacific Marine Engine Works of Portland, which will move the machinery of the plant to Portland. The Albany Iron Works, of Astoria, has taken over the patent for manufacturing the feed mill that the Watson Bros. plant has perfected, and will continue the manufacture of that machine in Astoria. S. E. Watson, member of the old concern, will join a shipbuilding concern in Seattle.

Henry Kern, owner of the North Bend Iron Works, Marshfield, Ore., has sold the site of his foundry to the North Bend Mill & Lumber Co. and will immediately begin work on the construction of a modern foundry plant.

The Dodge Mfg. Co., Mishawaka, Ind., has opened a branch warehouse and sales office at 522 First Avenue, South, Seattle, to handle products manufactured by the Dodge Steel Pulley Corporation, Oneida, N. Y., comprising complete line of Oneida steel split pulleys, National steel pulleys and Oneida wood split pulleys. Charles M. Weinberg is in charge.

The Railway Equipment Co., Portland, has removed its offices and salesrooms to Second and Stark Streets.

Fourteen shipyards in Oregon are affected by the action of the Shipping Board in commandeering all vessels under construction exceeding 2500 tons dead weight. These yards now have under construction 26 steel steamers and 81 wooden vessels, though some of the latter are under the 2500-ton limit. In the State of Washington 27 yards are affected. These yards have on the ways 69 steel steamers and 98 wooden vessels, of which a number are under the weight limit.

The American Shipbuilding Co., Portland, Ore., has been incorporated with a capital stock of \$250,000 by George N. Black, Cecil H. Bauer and Thomas G. Greene.

The Marine Pipe & Machine Works, Seattle, Wash., will equip a new plant at Spokane and Whatcom streets, where 24,000 sq. ft. of floor space will be occupied. Machine tools will be put in for the manufacture of heavy oil marine engines. The equipment will include a 10-ton crane and an erecting platform with a capacity for eight engines. The plant will have a capacity of from 50 to 60 motors a year.

The Sloan Shipyards Corporation, Seattle, Wash., is installing a 60-ton shear leg crane for placing engines on boats in the yards. A 1500-lb. steam hammer and a two-ton electric furnace have just been installed.

The Pacific Engineering & Equipment Co., Portland, Ore., has opened at 92 First Street with a line of sawmill and logging supplies and shipbuilding equipment.

Canada

TORONTO, ONT., Aug. 13.

The William Lyall Shipbuilding Co., Ltd., Montreal, Que., has been incorporated with a capital stock of \$1,000,000 by Errol Languedoc, Ralph E. Allan, William Taylor. William Lyall of the Peter Lyall Construction Co., Montreal, is also interested in the company, which will build and operate a shipbuilding plant.

The Dominion Carriage Co., Ltd., Montreal East, Que., has been incorporated with a capital stock of \$500,000 by Pierre T. Legare, Joseph H. Fortier, Pierre C. Falardeau and others, all of Quebec, Que., to manufacture automobiles, carriages, vehicles, machinery, implements.

The Empire Stove & Furnace Co., Ltd., Owen Sound, Ont.,

has been incorporated with a capital stock of \$100,000 by Archibald A. Parks, Abraham J. Creighton, Edgar W. McQuay and others to manufacture stoves, radiators, brass, steel and iron castings, etc.

The Sydney E. Junkins Co., Ltd., Montreal, has been incorporated with a capital stock of \$400,000 by Sydney E. Junkins, Humphry R. Drummond-Hay, Alexander J. Milligan and others to carry on an engineering and general construction business, to build railways, drydocks, shipbuilding plants, etc.

The Mackinnon Steel Co., Ltd., Sherbrooke, Que., has been incorporated with a capital stock of \$500,000 by Alexander Mackinnon, Jacob Nicol, Frederick C. Johnston and others to carry on the business of hydraulic, mechanical and electrical engineers, foundrymen, to manufacture electrical equipment, motors, steel, metals, etc.

The Frult Machinery Co., Hamilton Street, Ingersoll, contemplate alterations and addition to building for foundry at Belleville, Ont. F. B. Foley is manager.

The Imperial Munitions Board have plans prepared for \$5,000 factory addition at 56 Church Street, Toronto, Ont.

Roger Miller & Sons, Ltd., Lumsden Building, Toronto, Ont., have started work on a \$70,000 reinforced concrete and steel forge and machine shop for the British Forgings, Ltd., Royal Bank Building, Toronto, Ont.

The Nicu Steel Corporation, Ltd., has been incorporated with a capital stock of \$100,000 to engage in manufacture of steel and steel products.

Government Purchases

WASHINGTON, Aug. 13.

Bids will be received by the Bureau of Supplies and Accounts, Navy Department, Washington, opening date unassigned, schedule 1399, for four universal grinding machines for South Charleston, W. Va.; schedule 1404, opening date unassigned, for one back-gear engine lathe; one 66-in. horizontal drilling and boring machine; one 200-ton hydraulic forging press, all for Key West, Fla.

Bids were received at the Bureau of Supplies and Accounts, Navy Department, Washington, on August 7 for furnishing material and supplies for the naval service as follows:

Schedule 1341. Steam Engineering. Class 1, Mare Island—motor-driven lathes—Bid 147, \$3,050. Alternate, f.o.b. works—Bid 147, \$2,796. Class 2, Mare Island—motor-driven drills—Bid 112, \$1,518; 147, \$2,497. Alternate, f.o.b. works—Bid 27, \$1,830; 112, \$1,518; 123, \$2,475; 147, \$2,285. Class 3, Mare Island—milling machine—Bid 81, \$4,320. Alternate, f.o.b. works—Bid 16, \$3,430; 81, \$4,190. Class 4, Mare Island—boring machine—Bid 129, \$8,356. Alternate, f.o.b. works—Bid 129, \$7,900. Class 5, Mare Island—boring and turning mill—Bid 75, \$11,140; 81, \$11,765; 129, \$12,020. Alternate, f.o.b. works—Bid 75, \$10,550; 81, \$10,910; 129, \$11,100. Class 6, Mare Island—1 toolroom lathe—Bid 81, \$2,871; 112, \$3,135; 125, \$2,776; 143, \$3,163. Alternate, f.o.b. works—Bid 81, \$2,709; 92, \$1,370; 112, \$3,035; 143, \$2,963.

The names of the bidders and the numbers under which they are designated in the above list are as follows: Bid 16, Brown & Sharpe Mfg. Co., Providence, R. I.; 17, Almond W. Barnes, Brooklyn; 18, M. S. Brooks & Sons, Chester, Conn.; 19, the Ball & Roller Bearing Co., Danbury, Conn.; 20, Berger Bros. Co., 231 Arch St., Philadelphia; 21, Otto Bernz, 17 Ashland Street, Newark, N. J.; 22, The Brecht Co., 1201 Cass Ave., St. Louis; 23, Bommer Bros., 270 Willoughby Ave., Brooklyn; 24, Barber & Ross, Washington; 25, F. S. Banks & Co., 149 Church St., New York; 26, Baldwin Tool Works (Ward & Co.), Parkersburg, W. Va.; 27, Baker Bros., Post and Westlake St., Toledo, Ohio.

Bids were received by the general purchasing officer of the Panama Canal, Washington, on August 8, for furnishing under circular 2142, material and supplies as follows: Class 16, Transformer—Bid 10, \$1,200, 200 days; 20, \$1,065, 140 days. Class 22, Centrifugal pumps—Bid 26, \$1,784, New York delivery, 60 days; 31, \$1,123.50, f.o.b. New York and freight, 30 days; 36, \$2,380, 90 days.

The names of the bidders and the numbers under which they are designated in the above list are as follows: Bid 10, General Electric Co., Schenectady, N. Y.; 20, National Electrical Supply Co., Washington; 26, Southern Sales Co., Washington; 31, Ward & Co., Washington; 36, Edward J. Smith, 902 Widener Bldg., Philadelphia.

Edward T. Edwards, operating the East End rolling mill, Columbia, Pa., has inaugurated work at the Union Street iron mill, formerly operated by the Susquehanna Iron Co. The rolling mill has been remodeled and rebuilt and equipped with new machinery. Nine of the battery of furnaces have been started, giving employment to about 150 men.

NEW TRADE PUBLICATIONS

Chucks.—Cushman Chuck Co., Hartford, Conn. Catalog. Describes and illustrates a line of chucks and portable face-plate jaws for lathes and cutting-off machines and twist drills. Tables of the various sizes that can be supplied are presented and mention is made of a line of drill chuck arbors.

Screw Machine Parts.—Hartford Machine Screw Co., Hartford, Conn. Catalog. Illustrates a great variety of special turned and other parts that are produced by this company. These include pieces for electrical appliances, surgical and musical instruments, watches, clocks, optical work, bicycle and automobile parts, etc. A thumb index is provided to render the finding of any particular part a comparatively simple matter. Mention is made of the various kinds of screws and nuts that are regularly carried in stock and tables of useful information and a telegraph code are included.

Steel Wheels.—Geneva Metal Wheel Co., Geneva, Ohio. Catalog No. 15. Illustrates a line of steel wheels for barrows, carts, internal combustion engines, wagons, tractors, portable steam plants and derricks, agricultural implements and many other purposes. A story of the development of the wheel is given and this is followed by illustrations of the various styles of spoke heads used and a general description of the construction of the bearings and the wheels. Illustrations of the several types of wheels that are made are presented with brief descriptions of the work for which they are suitable and tables of the different sizes that can be supplied.

Twist Drills, Reamers, Wrenches and Drop Forgings.—Whitman & Barnes Mfg. Co., Akron, Ohio. Catalog No. 90. Size 4 $\frac{1}{4}$ x 7 $\frac{1}{4}$ in.; pages 158. Pertains to an extensive line of twist drills, reamers, wrenches and drop forgings. There is practically no text outside of a brief general introduction. In the arrangement of the catalog an illustration of the tool is given at the top of the page with a table of the various sizes that can be supplied underneath. Tables of the machines with which the twist drills can be used are given, and considerable useful information is included, together with instructions for grinding drills and ordering special tools. A number of illustrations of the drop forgings that can be made to order are presented and alphabetical and numerical indexes of the different tools are included.

Annealing Pans and Boxes and Hardening and Tempering Pots.—Garwood Bronze & Iron Works, Garwood, N. J. Forms PN, PO and R. Show various castings of special heat resisting metal. Brief statements of the advantages of using this metal for annealing pans and boxes and pots to contain hardening and tempering baths of lead, cyanide and oil are briefly touched upon, and mention is made of the facilities possessed for turning out special sizes and designs.

Automatic Steam and Water Service Valves.—Golden-Anderson Valve Specialty Co., Fulton Building, Pittsburgh. Catalog No. 19. Size, 6 x 9 in.; pages, 160. Lists an extensive line of non-return automatic steam and water service valves. These include automatic triple-acting valves, automatic non-return and automatic water service valves for high and low pressure and superheated steam service. Illustrations and brief descriptions of the various valves are given and in a number of cases tables of sizes and dimensions are included. A partial list of the users is given and mention is made of the facilities possessed for the design and construction of numerous special valves and other specialties for high and low pressure steam and water service.

Cranes.—Whiting Foundry Equipment Co., Harvey, Ill. Catalog No. 130. Refers to an extensive line of cranes which includes electric traveling, gantry, transfer, jib and pillar types. Illustrations and brief descriptions of the various kinds are presented and a number of views of the cranes in use at different plants are shown, particular attention being paid to their use in foundries. A partial list of users is included and mention is made of a line of railroad equipment.

Gaskets.—Fitzgerald Mfg. Co., Torrington, Conn. Catalog. Illustrates and describes a line of copper-asbestos, Mobilene and taper gaskets. Tables of the sizes regularly carried in stock are included.

Oil Burners and Oil Burning Systems.—Hammel Oil Burning Equipment Co., Inc., Providence, R. I. Catalog. Illustrates and describes a line of fuel oil burners under boilers as a substitute for coal. A number of plants in which these burners have been installed are shown and a partial list of users is included. Mention is made of a number of accessories which include oil firing valves, strainers, draft gage governors for the burner and supply pumps, etc.

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